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NON-FORMAL EDUCATION

K. RAJYALAKSHMI

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This book deals with one of the major thrust areas of new Educational Policy namely Non-formal Education. The present study relates to the education for school drop-outs and non-starters of 9-14 age group. Non-formal Education for the age group 9-14 is a new field with the history of about a decade in this country.

This study is an attempt made towards systematic evaluation of important components of the programme of Non-formal Education.

In the light of the findings of the study, the author has made a number of suggestions which may prove useful to scholars, planners and administrators concerned with Non-formal Education.

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Non-Formal Education

Reference Book

Dr. (Mrs.) K. Rajyalakshmi

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Foreword

One of the major thrust areas of National Policy on Education 1986 is Non-formal education. The nation has launched a large and systematic programme of Non-formal education for school drop-outs, children from habitations without schools (non-starters), working children and girls who can not attend whole-day schools. Some efforts have been made to evaluate the Programme of Non-formal Education. But thorough investigations based on empirical evidence are considerably less in number. The present study is an attempt made towards systematic evaluation of important components of the Programme of Non-formal Education.

"An Evaluative Study of Certain Aspects of Non-formal Education Programme for Children Aged 9-14 Years in Rayalaseema Area" which is doctoral thesis of Dr. (Mrs.) K. Rajyalakshmi is taking shape of a publication entitled "Non-formal Education" to reach more readers at an appropriate time. The publication is timely in the sense that it provides certain significant findings which have to be borne in mind in planning and conducting the Non-formal education, an alternate and complementary system to which the country and its people have committed themselves.

I am of the opinion that the study is a scholarly work. It represents a careful collection and analysis of relevant researches conducted in Non-formal education at the national level. An exhaustive explicitation of the hypotheses of the study, the tools and techniques forged for testing the hypotheses, the overwhelming nature of the analysis of data carefully gathered through the research tools—tests, inventory, check-lists, questionnaire, schedule and scales, careful qualitative and quantitative expression of data and their points and conclusions make the study a piece of scholarship.

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I am sure that the findings and conclusion of the study provide an insight into the problems of Non-formal Education to the planners, administrators as well as academicians. It is hoped that the publication will benefit and inspire more teachers and functionaries in future to put forth and tryout innovative ideas in the field of Non-formal Education.

Dr. N. Venkataiah
Professor & Chairman
Department of Studies in Education
and
Dean, Faculty of Education
University of Mysore
Manasagangotri
Mysore-570 006

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Preface

As India is a democratic country, the effectiveness of democratic process depends upon the education of its citizens and to provide education to them is the responsibility of the concerned governments, society and individuals. Education for all citizens can be ensured only by providing facilities for universal compulsory and free education. The constitutional obligation of providing free and compulsory education for all in the age group of 9-14 years still remains unfulfilled. The Sixth Five Year Plan (1981-85) of the Government of India laid down the target of 1990 for achieving the universalisation of elementary education. The problem of drop-out and wastage has been negating the progress achieved in relation to the enrolment of children in class I to VIII. During 1976-77, the percentage of drop-outs at the primary stage was 63.1 while at the middle stage it was 77.1. With a view to combating the situation, it is realised that the problem of drop-outs and non-starters should be tackled through an alternative strategy i.e., Non-formal Education.

Andhra Pradesh is one of the nine educationally backward states in our country. Non-formal Education for the children-drop-outs, non-starters in the age group of 9-14 years is in operation in all the three regions viz., Andhra, Rayalaseema and Telengana of Andhra Pradesh. Having started Non-formal Education programme with the hope that it would help the universalisation of primary education and give a golden opportunity for the drop-outs and non-starters, it is essential to make an evaluative study to find out how far these objectives are fulfilled.

As the implementation of the programme requires a big financial commitment on the part of the Government of India and the State Government of Andhra Pradesh, it is necessary

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to find out how effectively the programme is functioning. There is need for objective and systematic evaluation of certain important aspects of the programme. The results of such study will provide the administrators scientifically obtained information. It will help them to know the weak and strong points of the programme. The results will facilitate them to take correct decisions to formulate or revise plicies and to modify the actual operations of the programme. It is expected that the findings of the study could be used in organising the Non-formal Education programme so as to make the participants attain higher levels of academic performance. It is also useful to provide feed-back information which in turn facilitates the effective implementation of the programme.

The book is divided into seven chapters. First chapter deals with the introduction. Review of related literature is given in the second chapter. The third chapter consists of the statement, scope, objectives and hypotheses of the study. The fourth chapter is on the description of tools of research. Chapter five is devoted to methodology of investigation. The details of analysis of data and interpretation of results are presented in the sixth chapter. The last chapter gives a summary of the study, conclusions, recommendations and suggestions for further research.

This book is a thorough revised version of my doctoral thesis submitted to Sri Venkateswara University, Tirupati.

I acknowledge my debt of gratitude to Dr. N. Venkataiah, Professor and Chairman, Department of Studies in Education and Dean, Faculty of Education, University of Mysore, Mysore, for his excellent guidence, valuable comments and suggestions, untiring efforts and interest shown throughout the execution of this research study ; Dr. R. Srinivasa Rao, Professor, Department of Education, Dean, Faculty of Education and Principal, Sri Venkateswara University, Tirupati, for extending necessary facilities in the Department ; the National Council of Educational Research and Training, New Delhi, and State of Council of Educational Research and Training, Hyderabad,

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for providing the related literature and material on the subject ; the libraries of Sri Venkateswara University, Tirupati, University of Mysore, Mysore, Regional College of Education, Mysore, for the facilities provided and help extended by them ; the District Educational Officers, Supervisors, Instructors, Teachers and Students for their cooperation by furnishing the required data for the investigation ; Sri Venkateswara University, Tirupati for according necessary permission for the publication of my research work ; several others who have done their mite during the course of the work ; M/S Discovery Publishing House, New Delhi for bringing out this volume within a record time and finally to Dr. B. Padmanabha Reddy, my husband, for his inspiration and encouragement.

Dr. (Mrs.) K. Rajyalakshmi

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Contents

Foreward	vii
Preface	ix
List of Tables	xv
List of Figures	xx i
Chapter I—INTRODUCTION	1-12
Chapter II—REVIEW OF RELATED LITERATURE	13-39
Chapter III—STATEMENT OF THE PROBLEM AND HYPOTHESES	40—48
Chapter IV—DESCRIPTION OF THE TOOLS OF RESEARCH	49—102
Chapter V—METHODOLOGY OF INVESTIGATION	103—116
Chapter VI—PRESENTATION AND ANALYSIS OF DATA	117—253
Chapter VII—SUMMARY, CONCLUSIONS, RECOMMENDATIONS AND SUGGESTIONS	254—270
BIBLIOGRAPHICAL REFERENCES	271—285
APPENDICES	286—327
INDEX	329—332

CC-0 Agamnigam Digital Preservation Foundation,Chandigarh.Funding by IKS-MoE-2025-Grant

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List of Tables

Table Number	Title	Page Number
1.	Table of Specifications for Telugu Test	55
2.	Frequency Distribution of Scores—Telugu Test (Pilot Study)	60
3.	Number of Items in Pilot and Final Telugu Tests	60
4.	Table of Specifications for Arithmetic Test	62
5.	Frequency Distribution of Scores—Arithmetic Test (Pilot Study)	65
6.	Number of Items in the Pilot and Final Arithmetic Tests	65
7.	Table of Specifications for Test in Problem Areas	67
8.	Frequency Distribution of Scores—Test in Problem Areas (Pilot Study)	70
9.	Number of Items in Pilot and Final Tests in Problem Areas	71
10.	Scattergram of Scores used in Split-half Method—Telugu Test (Pilot Study)	73
11.	Scattergram of Scores used in Split-half Method—Arithmetic Test (Pilot Study)	74
12.	Scattergram of Scores used in Split-half Method—Problem Areas Test (Pilot Study)	75
13.	Frequency Distribution of Scores—Telugu Test (Pilot data after discarding the items)	76
14.	Frequency Distribution of Scores—Arithmetic Test (Pilot data after discarding the items)	77
15.	Frequency Distribution of Scores—Test in Problem Areas (Pilot data after discarding the items)	77
16.	Item-Total Correlation Coefficients of the Statements in the Academic Achievement Motivation Inventory (Pilot Study)	81

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17. Calculation of Critical Ratio 95
18. 't' Values and Item-Total Correlation Coefficients of the items in the Attitude Scale : Attitude of the Teachers Towards NFE Programme (Pilot Study) 96
19. Scattergram of Scores used in Split-half Method—Attitude of the Teachers Towards NFE (Pilot Study) 99
20. Composition of the Sample of NFE Learners (Final Study) 105
21. Composition of the Sample of Formal Primary School Pupils (Final Study) 106
22. Composition of the Sample of Drop-outs from NFE Centres (Final Study) 107
23. Composition of the Sample of NFE Instructors (Final Study) 108
24. Sex-wise Distribution of NFE Learners 118
25. Age-wise Distribution of NFE Learners 118
26. Caste-wise Distribution of NFE Learners 119
27. Distribution of NFE Learners on the Basis of Parents' Occupation 120
28. Distribution of NFE Learners on the Basis of Size of Land Holding of Parents 120
29. NFE Learners by the Development of Locality Score 121
30. Sex-wise Distribution of Instructors 122
31. Age-wise Distribution of Instructors 122
32. Caste-wise Distribution of Instructors 123
33. Occupation-wise Distribution of NFE Instructors 123
34. Distribution of Instructors Based on their General and Professional Qualifications 124
35. Teaching Experience of NFE Instructors 125
36. Place where NFE Classes were Held 126
37. Lighting Arrangments in the NFE Centres 126
38. Seating Arrangements in the NFE Centres 127
39. Area of the NFE Centres 127
40. Other Physical Facilities in the NFE Centres 128
41. Availability of Teaching-learning Materials in NFE Centres 129
42. Physical Facilities Scores of NFE Centres 131
43. Physical Facilities of NFE Centres in the Four Districts of Rayalaseema 132

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Gandhi Memorial College Of Education Bantalab Jammu

44. Teaching-learning Materials of NFE Centres in Four Districts of Rayalaseema 134
45. Professional Qualifications of Teachers in the Four Districts of Rayalaseema 135
46. Teaching Experience of NFE Instructors in the Four Districts of Rayalaseema 136
47. Frequency Distribution of Attitude Scores of Teachers 137
48. Values of Mean, Median, Mode, Quartile Deviation and Standard Deviation of Attitude Scores of NFE Instructors 139
49. Skewness and Kurtosis of the Score Distribution of the Attitude Scale 140
50. Sex-wise Attitude Scores of the NFE Instructors 140
51. Age-wise Attitude Scores of NFE Instructors 141
52. Attitude Scores of Instructors With and Without Professional Qualifications towards NFE 142
53. Attitude Scores of Instructors With Less and More Teaching Experience 143
54. Responses on the Reasons for Attending the NFE Centres 145
55. Ranking of Reasons Given by the Learners in Different Districts of Rayalaseema for Attending the NFE Centres 147
56. Ranking of Reasons Given by Boys and Girls for Attending the NFE Centres 149
57. Ranking of Reasons Given by the Learners Belonging to the Two Age Groups for Attending the NFE Centres 150
58. Ranking of Reasons Given by the Learners Belonging to Different Caste Groups for Attending the NFE Centres 151
59. Ranking of Reasons Given by the Learners from Families with Different Occupations for Attending the NFE Centres 152
60. Ranking of Reasons Given by the Learners from Families with Different Sizes of Land Holding for Attending the NFE Centres 154

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Gandhi Memorial College Of Education Bantalab Jammu

61. Ranking of Reasons Given by the Learners from Different Levels of Development of Locality for Attending the NFE Centres 155
62. Responses on the Reasons for Dropping out from the NFE Centres 157
63. Ranking of Reasons Given by Drop-outs for their Dropping Out from NFE Centres in the Four Districts of Rayalaseema 159
64. Ranking of Reasons Given by Boys and Girls for Dropping Out from NFE Centres 161
65. Ranking of Reasons Given by Drop-outs Belonging to the Two Age Groups for Dropping Out form NFE Centres 163
66. Ranking of Reasons Given by Drop-outs Belonging to the Different Caste Groups for Dropping out from the NFE Centres 164
67. Ranking of Reasons Given by Drop-outs from Families With Different Occupations for Dropping out from NFE Centres 167
68. Ranking of Reasons Given by Drop-outs from Families With Different Sizes of Land Holding for Dropping out from NFE Centres 168
69. Ranking of Reasons Given by Drop-outs from Different Levels of Development of Locality for Dropping out from NFE Centres 171
70. Frequency Distribution of Scores of NFF Learners in Telugu Test 173
71. Frequency Distribution of Scores of NFE Learners in Arithmetic Test 176
72. Frequency Distribution of Scores of NFE Learners in Problem Areas Test 179
73. Frequency Distribution of Scores of NFE Learners in Total Test 182
74. Values of Mean, Median, Mode, Quartile Deviation and Standard Deviation of Achievement Test Scores of NFE Learners 185
75. Skewness and Kurtosis of the Score Distribution of the Achievement Tests taken by the NFE Learners 186

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Gandhi Memorial College Of Education Bantalab Jammu

76. Frequency Distribution of Scores of Formal Learners in Telugu Test 187
77. Frequency Distribution of Scores of Formal Learners in Arithmetic Test 188
78. Frequency Distribution of Scores of Formal Learners in Problem Areas Test 192
79. Frequency Distribution of Scores of Formal Learners in Total Test 193
80. Values of Mean, Median, Mode, Quartile Deviation and Standard Deviation of Achievement Test Scores of Formal Learners 197
81. Skewness and Kurtosis of the Score Distribution of the Achievement Tests taken by the Formal Learners 198
82. The Influence of Sex on the Academic Achievement of NFE Learners 201
83. The Influence of Age on the Academic Achievement of NFE Learners 202
84. The Influence of Caste on the Academic Achievement of NFE Learners 204
85. The Influence of Parent's Occupation on the Academic Achievement of NFE Learners 207
86. The Influence of Parent's Size of Land Holding on the Academic Achievement of NFE Learners 209
87. The Influence of Development of Locality on the Academic Achievement of NFE Learners 212
88. The Influence of Income of Parents on the Academic Achievement of NFE Learners 214
89. The Influence of Academic Achievement Motivation on the Academic Achievement of NFE Learners 217
90. The Influence of Category of Drop-out/Non-starter on the Academic Achievement of NFE Learners 219
91. The Influence of Professional Qualifications of Instructors on the Academic Achievement of NFE Learners 221
92. The Influence of Teaching Experience of the Instructors on Academic Achievement of NFE Learners 223
93. The Influence of Attitude of Instructors on Academic Achievement of NFE Learners 225

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Gandhi Memorial College Of Education Bantalab Jammu

94. The Influence of Availability of Physical Facilities in NFE Centres on the Academic Achievement of NFE Learners 229
95. The Influence of Availability of Teaching-learning Materials in NFE Centres on Academic Achievement of NFE Learners 232
96. Inter-Correlations Between Dependent Variable and Independent Variables of the Learners of NFE 234
97. Multiple (step-wise) Regression Analysis— Dependent Variable : Academic Achievement, Independent Variables : Academic Achievement Motivation, Age, Attitude Towards NFE, Size of Land Holding, Teaching-learning Materials, Income, Physical Facilities and Development of Locality 236
98. Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Telugu Test) 243
99. Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Arithmetic Test) 244
100. Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Problem Areas Test) 247
101. Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Total Test) 251
102. 'PQ' Values for the Items in the Telugu Test (Pilot Study) 310
103. 'PQ' Values for the Items in the Arithmetic Test (Pilot Study) 314
104. 'PQ' Values for Items in the Problems Areas Test (Pilot Study) 317
105. Difficulty and Discrimination Indices of the Items in Telugu Test (Pilot Study) 321
106. Difficulty and Discrimination Indices of the Items in Arithmetic Test (Pilot Study) 323
107. Difficulty and Discrimination Indices of the Items in Problem Areas Test (Pilot Study) 325

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Gandhi Memorial College Of Education Bantalab Jammu

List of Figures

Figure Number	Title	Page Number
1.	A Smoothed Frequency Polygon for the Distribution of Scores of the Instructors in the Attitude Scale—Attitude of Teachers Towards NFE	138
2.	A Smoothed Frequency Polygon for the Distribution of Scores of the NFE Learners in Telugu Test	175
3.	A Smoothed Frequency Polygon for Distribution of Scores of the NFE Learners in Arithmetic Test	178
4.	A smoothed Frequency Polygon for the Distribution of Scores of the NFE Learners in Problem Areas Test	181
5.	A Smoothed Frequency Polygon for the Distribution of Scores of the NFE Learners in Total Test	184
6.	A Smoothed Frequency Polygon for the Distribution of Scores of the Formal Learners in Telugu Test	189
7.	A Smoothed Frequency Polygon for the Distribution of Scores of the Formal Learners in Arithmetic Test	191
8.	A Smoothed Frequency Polygon for the Distribution of Scores of the Formal Learners in Problem Areas Test	194
9.	A Smoothed Frequency Polygon for the Distribution of Scores of the Formal Learners in Total Test	196
10.	Percentage of Mean Scores of the Formal and Non-formal Learners in the Achievement Tests	245

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Gandhi Memorial College Of Education Bantalab Jammu

11. Ogives of the Scores of the Formal and Non-formal Learners on the Telugu Test 246
12. Ogives of the Scores of the Formal and Non-formal Learners on the Arithmetic Test 248
13. Ogives of the Scores of the Formal and Non-formal Learners in Problem Areas Test 250
14. Ogives of the Scores of the Formal and Non-formal Learners in Total Test 252

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Gandhi Memorial College Of Education Bantalab Jammu

CHAPTER I

Introduction

In this chapter the non-formal education in the context of universalisation of primary education, a brief sketch of non-formal education in Andhra Pradesh are introduced.

1.1 UNIVERSALISATION OF PRIMARY EDUCATION— NON-FORMAL EDUCATION

Ours is a democratic country. The effectiveness of democratic process depends upon the education of its citizens. To provide education to its citizens is the responsibility of all concerned-Government, society and individuals. Education for all citizens can be ensured only by providing facilities for universal compulsory and free education. The directive principle of the constitution enjoins on us to make efforts to provide free, compulsory and universal education for children upto the age of 14. This, by and large, encompasses the elementary education.

Elementary education is significant from all angles. The quality of further education depends substantially on what is done in elementary education. Unless elementary education is not universalised, it will be difficult to remove existing discrepancies in the society. It is the basis for all programmes of development-economic, political etc. Keeping in view all this, the elementary education sector has been given the highest priority. As per constitutional declaration the target of the universalisation of elementary education was to be completed by 1960. However, the year for achieving the target of universalisation of elementary education has been shifted plan

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after plan. All out efforts will be made in the Seventh Five Year Plan to achieve the target by 1990.

1.1.1 Progress of Enrolment

Although it has not been possible to attain the goal of universalisation of elementary education in the country inspite of three and half decades of planned development, the progress achieved so far has indeed been impressive. The total enrolment in classes I to V has risen from 191.55 lakhs (42.6%) in 1950-51 to 846.38 lakhs (91%) in 1985. The enrolment in classes VI to VIII had risen from 31.20 lakhs (12.7%) in 1950-51 to 273.83 lakhs (51%) in 1985.

1.1.2 Variation in Enrolment

As stated in National Council of Educational Research and Training (NCERT) the progress of enrolment report (1985) in the country has not been uniform. Some states like Kerala have reached nearly 100 percent enrolment target while several states are lagging far behind. The nine identified backward states are : Andhra Pradesh, Bihar, Haryana, Karnataka, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal. Besides inter-state variations, there are intra-state variations in enrolment too. The vast bulk of the out-of-school children at present consists of girls, children of scheduled castes and tribes and children of other weaker sections like landless agricultural workers. The enrolments in rural areas are generally lesser than those in urban areas.

1.1.3 The Drop-out Problem

As reported by Dave and Ramachandran (1984), the problem of drop-out and wastage has been negative the progress achieved in relation to the enrolment of children. Several indepth studies and global calculations of drop-out rates have indicated that out of 100 students entering class I only 40 students reach class V and only 25 students reach class VIII. Every subsequent year, a vast majority of adult illiterates already existing is resulting a never ending line of disparity.

1.1.4 Limitations of Formal Education

There is ample evidence to prove that the formal system of

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education can not meet all societal, collective and individual needs for instruction, knowledge, skills and behavioural change even if the schools are ideally developed and their curricula and teaching methods are perfectly elaborated, it is not possible to fulfil all requirements in education through the formal system alone. There are many reasons for it. They include the following.

There is a trend towards democratisation of education. It is neither feasible nor realistic to offer formal education facilities to all people who are in need of education. The obviously restraining factors are the enormous increase in enrolment, raise in educational cost per pupil, limitations of Governmental expenditure and practical difficulties of distance, transport etc. The working class, therefore, thinks that the full time formal system of education is against their interests and the poor people opine that continuance of formal system alone show denial of education to them.

The primary school of the formal type was designed over a hundred and fifty years ago for a certain social situation and on certain assumptions which were valid in that situation. It was assumed for instance that students would attend school for five to six hours a day, that parents would gladly feed, equip and send their children to school on a full time basis, that the curriculum would be of interest to every child.

The primary school began in urban areas, mainly for the children of the well to do upper and middle classes who were themselves educated and had appreciated the value of education and who could feed, clothe, equip and send their children to school on a whole time basis. There was no concept of either universal education or compulsory schooling when the primary school was designed nor was it the objective of primary education to educate the child to his own environment.

It was such an exotic concept of primary education that was sought to be transplanted in the rural areas and it is no wonder that it failed to take root. The basic assumptions on

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which it was designed no longer obtained and hence the primary school in rural areas became largely disfunctioning resulting in increase in the number of drop-outs and the non-school going children. The major reasons for the failure of the formal school to attract children in rural areas could be briefly stated as follows :

(1) Its rigid timings and demands it makes on children in terms of full time attendance.
(2) The socio-economic conditions in rural areas do not permit children to devote so much time to school. They have to work in order to supplement the family income. In the case of girls apart from their having to assist with work at home, there is no positive attitude to their education among the parents.
(3) Formal education with its rigid curriculum has no relevance to their needs.
(4) Lack of appreciation for the value of education as most parents in rural areas are illiterate themselves.

1.1.5 Non-formal Education—An Alternative

In the context of universalisation of elementary education, the need for tackling the problem of drop-outs and non-school going children is being increasingly recognised. In view of the difficulties in expanding facilities of formal education and the failure of the formal education to attract to its fold and keep in it a large number of children in the age group 6-14 the alternative strategy is expected to be provided by the non-formal approach in education. This approach is expected to give the drop-outs and non-school going children all the benefits of primary school education without putting them through the rigidities of its time-tables, syllabi, etc.

The Central Advisory Board of Education at its last meeting held in November 1974 laid special emphasis on the development of programmes of non-formal education. As a general strategy it urged that the exclusive emphasis on formal system of education should be given up and a large element of non-formal education should be introduced within the system. Multiple entry and programmes of part time education have to

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be adopted in a big way. All state plans should henceforth include programmes of non-formal education as an integral part of educational provisions and suitable machinery be set up in each state to formulate, device and implement programmes of non-formal education.

With respect to universalisation of elementary education the board expressed conviction that the goal can not be realised through an exclusive reliance on the formal system of education with its single point entry, sequential character and full time institutional instruction with full time professional teachers. The board, therefore recommended a large scale programme of part-time education for those children who can not attend schools for some reason or the other on a whole time basis. The board also urged that every state should prepare a concrete and realistic programme which should be made financially feasible through, interalia, the introduction of non-formal elements within the existing system.

1.1.6 The Concept of Non-formal Eduction

A general and broadly accepted definition of Non-Formal Education (NFE) was first given by Coombs (1973). "Any organised educational activity outside the formal system—whether operating separately or as an important feature of some broad activity that is intended to serve some identifiable learning clienteles and learning objectives."

La Bella (1975) defines "non-formal education is organised out-of-school educational programme designed to provide specific learning experiences for specific target population."

According to Kleis, Lang, Mietus and Tiapula (1974) "non-formal education is an international and systematic educational enterprise (usually outside of traditional schooling) in which content, media, time units, admission criteria, staff, facilities and other system components are selected/adopted for particular student populations of situations in order to maximise attainment of the learning mission and to minimise maintenance constraints of the system."

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Ward and Dettoni (1974) state that "non-formal education is a planned instructional design which uses both overt and covert procedures in a more flexible environment to reach towards a goal determined by a regulated policy."

Naik (1975) recommending the need for NFE system agrees with the definition of Coombs and says that "the most urgent reform needed is to transform the present educational structure with the introduction of a large non-formal element."

After observing the definitions given to clarify the concept of NFE, it could be said that NFE focuses on improvement of social and personal living, occupational capability and vocational competency. The learning is more characteristic of out-of-school learning. NFE is deliberately planned with a motive to bring educational opportunities closer to the people and to open more alternatives to formal schooling experience.

In this study, the NFE is referred to the education of the drop-outs and non-starters of the age group 9-14.

1.1.7 The Aims of NFE

The aims of NFE for 6-14 age group as stated by Adinarayana (1983) and Krishna Rao and Papa (1984) are as follows :

(1) To give the children the essential skills of literacy,
(2) To teach them numeracy in a useful manner,
(3) To create among the children of the disadvantaged sections of society a favourable attitude towards education and to create better opportunities for their children,
(4) To attract the drop-outs back to the field of education,
(5) To develop in the children proper habits and attitudes to help them to lead a healthy life,
(6) To develop among children a scientific attitude towards their environment,
(7) To adapt education suitable to their needs, interests and skills, and

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(8) To develop in them skills and attitudes essential for good citizenship.

1.1.8 Characteristics of NFE

The aspects to which the planners of NFE have to bestow their attention may be stated as follows :

(1) The system must attract its clientele and keep them in its fold.

(2) It should educate the clientele in the real sense and also enable them re-enter the formal system of education if they so desire.

(3) The system must not remove the participants from their economic activities. On the other hand it should improve their professional competence and help them raise their incomes at the same time.

(4) The system should adjust itself to suit the conveniences of its clientele in relation to cognitive load, nature of content, timings, etc.

(5) The system is not a substitute for the final system. It is considered a complementary strategy to achieve the objective of the universalisation of elementary education.

(6) It should provide suitable educational opportunities to girls.

(7) It shall have the problem approach as the core of its strategy.

(8) It should help its clientele become effective instruments of change in the society in which they live.

(9) The system should not be inferior in any way to the formal system, especially in the matter of cognitive objectives and values.

1.2 NFE IN ANDHRA PRADESH

1.2.1 Educational Backwardness

Andhra Pradesh is one of the nine educationally backward states in the country. It is educationally backward because it has high percentage of non-enrolled children of age group 6-14 particularly of girls lacking of schooling facilities, high

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drop-out rates of children both at primary and middle level and a number of single teacher schools and very low literacy rate (29.72%). Andhra Pradesh has the lowest retention ratio in the country. For boys the retention ratio is 25 percent as against the all India figures of 34.80 percent, for girls 19.57 percent against the all India figures of 25.58 percent. In the backward districts there is non-participation as well as withdrawals of children. Therefore, the implementation of NFE programme in this state is more relevant than in any other state.

1.2.2 Organisation of NFE

A NFE cell was created in the State Council of Educational Research and Training (SCERT) for academic purposes and to help the Joint Director (at the Directorate of School Education) exclusively appointed for NFE in monitoring and evaluation of the NFE programme. The District Educational Officer is entrusted with the overall responsibility to administer the NFE centres at the district level, periodical inspection and NFE centres at the district level, periodical inspection and supervision of the activities of the supervisors and the instructors, liaison between the Joint Director of NFE and SCERT on the one hand and the Supervisors and the Instructors of the NFE on the other. The District Educational Officer arranges for the training programmes for the instructors and supervisors of NFE by working in close contact with the SCERT. A supervisor for 60 NFE centres of a block exclusively for the purpose of supervision, is appointed.

The NFE envisages to impart education to the children of the age group 9-14 years who are drop-outs of formal primary schools or non-starters. The time for imparting instruction is very flexible. It must coincide with educand's leisure whether it may be early in the morning, early or late in the afternoon or early in the evening. NFE centres run late in the afternoon. Each NFE centre runs for two hours at a time convenient to the learners. The place of centre may be a community hall, a panchayat office, public shed, a temple, a mosque, a factory shed or a private house which is available free of rent. Each NFE centre has a minimum of 25 students.

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The NFE instructor is the linchpin of the whole NFE programme. He is a friend and guide to the learner. Persuation with love and affection is his invincible weapon to win over learners. A local person with pleasing manners and popular with the local community is a proper instructor of NFE. Minimum qualifications for a NEF instructor is secondary school examination certificate. Dedication to work and regularity in running the centre contributes to his continuity as an instructor. Instructors are given the training in order to keep them abreast with the latest technique of teaching the NFE children.

Besides sets of books (Telugu-Chaduvukundam Padandi, Arithmetic and Problem Areas) State Education Department provides slates, slate pencils, roll-up blackboards, maps, exercise book, and other essential teaching and learning material to the NFE centres free of cost.

The learners covered by NFE programme belong to economically backward classes and weaker sections of the society which can not afford to spare their children for a whole day school, for the learner is an earning member of the family. So he is provided education free of any sort of tuition fee or any other kind of fee. He is free from all sorts of encumbrances relating to his education.

1.2.3 Stages in Phase-I of NFE

The first phase of NFE is to be completed in course of 2 years with four stages (stages I, II, III and IV) each to be covered in a period of six months. Knowledge and competencies which would normally be expected in classes I to V of the formal school are included in the syllabus for Phase I. It is proposed that a short bridge course will fill whatever little gaps might be there. Children who have completed the phase I would be able to take the entrance test for class VI and seek admission in a formal school, if the so desire.

1.2.4 Curriculum for NFE

The curriculum for NFE is conceived as consisting of two

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aspects. The first aspect related to the integration and processing of content under environmental studies, crossing the subject barriers in such a way as to make it more functional with its focus on selected problem areas i.e., areas of knowledge to which the problems a citizen faces can be related; and this forms the core of the computation skills and relate them to the core curriculum in such a way as to help them understand the content while at the same time consolidating the skills themselves. The syllabi were prepared in confirmity with this thinking for each of the problem areas in three stages of six months duration each.

Based on these syllabi, instructional materials for students and teachers were prepared separately. The instructional meterial for the students in 'problem areas' have been so designed as to focus the content on specific problems and to provide scope for self study and self evaluation. The teachers' modules have also been so designed as to help the teacher overcome the difficulties posed by NFE. The stress in this material is mainly on the following points :

(1) The students must be able to read and understand the content after it is taught by the teacher.

(2) Since the student is not expected to find any time for study at home, reinforcement of learning, has to be done in class and the teachers' handbook is to take care of this.

(3) The student as well as the teacher must know what generalisations are involved in thinking out better solutions to problems.

In mathematics, a simple workbook has been designed for stages I, II, III and IV. For Telugu, four different readers are adopted for different clientele, i.e., urban children, tribal children, rural boys and rural girls. Teachers' handbooks for these readers are also prepared. Telugu readers for stages II, III and IV, and handbooks for these readers are prepared.

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The instructional materials, thus prepared by the SCERT are followed for all stages in phase I of NFE.

1.2.5 NFE Centres

The Union Ministry of Education is extending special central assistance to the state on a 50 : 50 basis under a centrally sponsored scheme of NFE programmes.

The State Education Department, Andhra Pradesh as reported in brochure No. 11 of NCERT (1984), takes a huge stride in operating NFE centres in all the three regions of the state namely, Circar, Rayalaseema and Telangana. The state had 830 NFE centres in 1980-81 covering 20,750 children, 5,600 centres in 1982-83 covering 1,40,000 children, 4,400 centres in 1983-84 covering 1,12,000 children and 4,480 centres in 1984-85 covering 1,12,000 children.

1.2.6 Present Study

The objective of universalisation of elementary education is saught to be realised through the NFE programme. The NFE programme has been implemented in all the regions of the state since 1979-80. No research study worth mentioning is conducted to evaluate the functioning of NFE programme in any one of the regions of Andhra Pradesh. Therefore an attempt is made to evaluate certain aspects of the functioning of the programme in this investigation. Such an evaluation aims at establishing the progress made identifying the areas of, and the factors responsible for strengths and weaknesses, and suggesting remedial measures. As the evaluation is conducted when the NFE programme is underway, the findings can help in strengthening the programme and if necessary, altering its strategies.

1.3 RESUME OF THE SUCCEEDING CHAPTERS

This thesis is divided into seven chapters. The second chapter deals with the review of related research in NFE for the age group 6-14 years and 15-35 years. The third chapter

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consists of the statement, scope, objectives and hypotheses of the study. The fourth chapter is on the description of tools of research. Chapter five is devoted to methodology of investigation. The details of analysis of data and interpretation of results are presented in the sixth chapter. The last chapter gives a summary of the study, conclusions, recommendations and suggestions for further research.

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CHAPTER II

Review of Related Literature

This chapter deals with the review of the related literature. Section one is devoted to the review of all the researches so far conducted in the field of NFE, 6-14 age group in India. Section two deals with the review of the researches in NFE, 15-35 age group already conducted in India.

2.1 REVIEW OF RELATED LITERATURE—NFE (6-14 AGE GROUP)

The term non-formal education has been used to denote education which does not take place in the formal school system. In Indian context NFE embraces mainly two areas namely (1) adult and continuing education and (2) education for school drop-outs and non-starters of 6-14 age group. But in the state of Andhra Pradesh in the official and non-official circles the term NFE is used only to denote the education for school drop-outs and non-starters. NFE for the age group 6-14 is a new field with less than the history of a decade. Many research studies worth noting are not reported in the available literature. However a herculian effort is made in searching the following few studies made in the field of NFE (6-14 age group). The investigator is aware that these studies are not very much relevant to the present study. Inspite of this fact, all the available research studies are reviewed hereunder only to point out the need for rigorous researches in this emerging new area.

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National Service Scheme unit of the Government Training College, Sambalpur (1976), conducted a survey with the objective of finding non-school going children in the age group of 6-14 in Sambalpur municipality area. The findings of the survey revealed that (1) There were 14,225 non-school going children, (2) 24 percent of children were not attending schools, (3) Of them 86.5 percent of the children's parents has a monthly income of below Rs. 300/-, (4) The reasons for not attending the schools were poverty (80%), unwillingness of children (13%), failure (2%), punishment in schools (2%), prolonged illness (2%) and physically handicapped and other reasons (1%), (5) Engagement of non-school goers were—no work at home or elsewhere (50%), helping parents and other members of the family (25%), working as household servants (11%), beedi bundling work (3%), working as shop boys (3%), helping in motor garriage (2%), working as hotel boys (2%), and (6) Time suitable for non-formal learning was evening (69%), morning (15%) and any time (15%).

Saraswathi (1978) made a study on 'A Profile of the Clientele in the NFE Centres for 6-14 Years in Tamilnadu.' This study was conducted over six districts of Tamilnadu with the purposes of assessing the family background of NFE participants (most of them in the age group 12-14) and its implication for purposeful planning and executing the programme. The sample consisted of one centre each from the districts chosen, where as the question schedules were administered to 254 parents and an equal number of learners belonging to the outgoing and incoming batches of 1978 and 1979. The amplitude and variegated pattern of the question schedules elicited information that brought into focus some unattended areas needing ready attention. The findings of the study were : (1) (A) The kinds of education preferred by parents were mainly job oriented, craft oriented or functional literacy, (B) The three major reasons given by the parents in almost all the centres for stopping the children from going to NFE centres were necessity to work, poverty and no desire on the part of the child. A noticeable number of parents wanted their children to avail the available opportunities to study at nights. (2) The reasons for learning literacy were mainly its usefulness in daily

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life and taking up jobs. The children's main aim in life seemed to be to improve their economic status through pursuing an occupation or a craft or small business. Many children were not able to say what they wanted in life. Majority of such children were girls.

Rehman (1978) made a study on 'Development of Population Education Curriculum in a System of Non-formal Education for Out of School Youth.' The objectives of the study were the development of population education curriculum, implication of curriculum materials in actual situation and evaluation of curriculum materials. The sample drawn for implementation and evaluation part of the curriculum was confined to two selected villages. The data were collected with the help of self made opinionnaire, attitude test and achievement test. The major findings were : (1) There was no contradiction or inconsistency between the general objectives and specific objectives. The specific objectives were clearly defined in behavioural terms. Achievement of the specific objective helped to achieve the general objective. The specific objectives were acceptable. (2) Selected concepts and content areas were suitable for the fulfilment of the objectives. (3) The curriculum materials (consisting of instructional materials, teaching aids, instructional notes, instructional manual) helped in bringing out the change of attitude among learners towards matters pertaining to population.

Indira (1978) conducted an experimental study on 'Relative Effectiveness of Certain Selected Teaching Methods and Aids in Teaching Formal and Non-formal Groups of Rural Children.' The results indicated that (1) Teaching through combination of two teaching methods (lecture and discussion) and one aid (flash cards) was more effective than a lecture method alone and (2) With the non-formal children combination of two teaching methods and one aid was found to be more effective than it was with the formal children.

Chickermane (1979) conducted a study on 'Elementary Non-formal Education for Out of School Children.' The objective of the study was to develop a scheme for elementary

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non-formal education for out-of-school children after an analysis of content and its organisation for achieving a certain level of academic standards in elementary non-formal education centres. Four major educational needs were identified and a curriculum for six subjects was drawn up. Details of content and activities were listed. The functioning of the experimental elementary non-formal education class over the ten months period was discussed with regard to its location, accommodation, emoluments, attendance, curriculum followed, teaching methods and evaluation procedures. The findings of the experiment indicated that (1) Universalisation could be achieved through part-time education for out-of-school children, (2) The part-time education should be of three categories : (A) The majority who dropped out before class IV; (B) General education for those who left after class IV but would be going in for secondary education; (C) Vocational education for those who left after class IV, desiring to take up a vocation, (3) Though it was not feasible to have separate classes for the small number who had studied till class IV, they required some compulsory education and elements of vocational education, particularly, agriculture and gardening, (4) All education should be imparted through activities and their work on farms be related to the instructional programme, (5) The elementary non-formal education centre classes be attached to the primary school and be the responsibility of the state, (6) A full time teacher be engaged to run the classes in the afternoon and at other times pay home visits to observe children at work in the home and on farms, and (7) Interested voluntary agencies be allowed to run such classes wherein the entire expenses involved, including teachers' salary, be reimbursed.

Majumder and Kaul (1979) reported about Education Outside School in Third All India Educational Survey, that taking the country as a whole, a large proportion of the nation's out-of-school children and youth was still outside any programme of NFE. The survey also revealed that only 0.05 percent of the child population of the age group 2+ to 14+ had so far been covered by some form of educational pro-

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grammes of the non-formal type. Only 8,77,668 young people of the age group 15 and above had so far been getting the benefit of one or the other form of out-of-school education. Thus, barely a fringe of the population had been touched by the various Government and voluntary agencies through out-of-school education programmes.

Saraswathi (1979) conducted a case study on 'Non-formal Education Centre at Thamaraipadi (for the age group 6-14).' The major objective of the study was to find out the probable reasons for the high attendance rate in the NFE centre in Thamaraipadi. As revealed by the study the reasons for motivation in Thamaraipadi centre were : (1) The teacher's dedicated hard work (A) in making the centre popular among people in the village, (B) with the officials concerned with NFE, (2) Flexibility of the programme with reference to time schedule, (3) Cultural programme serving as a real recreational programme for not only the participants but also for all the people in the village, and (4) The realisation on the part of the people of the importance of being literate which is their due to constellation of several reasons. The main reason being the traditional society's emphasis on being literate, the prestige that is attached to it.

Gupta and Ambasht (1980) conducted a study on 'Non-formal Education in Action.' The objective of the study was to view the achievement of NFE centres operating under the supervision of field advisors of NCERT and Regional Colleges of Education. The main findings of the study were: (1) Response to enrolment in the NFE centres has been very encouraging, (2) About 50 percent children enrolled in each centre have reached the level of grade II within seven months in respect of literacy and numeracy, (3) Personal visits by Field Advisor, Field Supervisor and Field Workers to the houses of people have helped a lot in motivating the community to send their wards to the NFE centres, and (4) The exposure to the programme developed a lot of confidence among the children attending the centres. They also reported some defects of the programme. (1) The concept of NFE as conceived under the national programme was not discussed in detail with all the

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agencies who had been given the responsibility of implementing the scheme. (2) There was delay in the supply of instructional materials. (3) Most of the Field Workers and Field Supervisors appointed to look after the NFE centres did not have background of working in the field of education or training in handling the children. (4) Community involvement was very little in the working of the centres. (5) There was very little coordination between the organisors of these centres and other developmental agencies in the area. (6) No effort was made to take up a scientific evaluation of the scheme and instructional materials.

Gupta, Grewal and Rajput (1981) conducted 'A Study of Environmental Awareness Among Children of Rural and Urban Schools and Non-formal Education Centres.' The objectives of the study were : (1) To know the components of environment in which children from rural and urban areas were lacking and the areas in which the students from both the streams were well acquainted, (2) To compare the environmental awareness of school going children and children studying in NFE centres, and (3) To suggest means for developing environment-based curriculum for universalisation of elementary education. The study was conducted on 115 students of IV standard—20 from rural schools, 35 from urban schools and 60 from NFE centres. The three groups were designed as FR (n=20) ; FU (n=35) and NFE (n=60). An environmental questionnaire by Rajput and associates was administered on the sample. The performance of the students of the three groups was compared with each other. Differences were tested for significance by 't' test. First and the last ten ranking questions for each of the groups were identified and compared with each other.

The findings of the study were as follows : (1) The difference between FR and FU on environment awareness was significant and in favour of FR. (2) Difference between NFE and FU was also significant on environmental awareness and in favour of NFE. (3) The difference between NFE and FR on environmental awareness was not significant. (4) The common aspects

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in the first ten were source of getting cotton (FR/FR/NFR), edible portion of tomato plant (FU/FR/NFR), animal for watching the house (FR/FR/NFR), effect of weather on the growth of plants (FR/FR/NFR), direction of sunrise (FR/FR/NFR), source of getting wool (FR/NFR). (5) Some common aspects in the last ten ranked items were : ways of preventing rusting of objects (FU/FR/NFR), shape of the earth (application part) (FU/FR/NFR), the way of finding the direction of the wind (FR/FR/NFR), idea of evaporation of water (FR/FR/NFR), relationship between rocks and stones (FR/FR), the reasons for night being dark (FR/FR), the reason for giving boiled water to patients (FR/NFR), the reasons for shadow not being formed in the dark (FR/NFR), relationship between rocks and soil (FR/NFR), to find out time in a watch (FR/NFR), and the role of bone skeleton to give a definite shape to the body (NFR/FR).

Naidu (1982) conducted 'A Study of the Educational Problems of the Participants in Non-formal Education Centres in Karvetinagar Block.' The objectives of the study were to find out the educational problems of the participants in NFE centres, whether the educational problems differ between the age groups, male and female groups and the influence of age and sex on the educational problems of the participants. Problem check-list consisting of 60 items was the tod employed in the study. The main problems faced by the majority of the centres were : (1) Text-books available were less than the number required, (2) There was no proper lighting in the centre, (3) There was no required teaching materials, (4) There were no sufficient books for reading, (5) Not knowing the method of reading by which maximum learning takes place, (6) Getting absent to centre due to work at home, (7) The prescribed duration of the class was more than what was required, (8) Surroundings of the centres were not clean, (9) The class-room was narrow and small, and (10) There was no adequate facility to sit in the school. No relationship was observed between the sex and educational problems. There was no relationship between the learners belonging to different age groups and number of educational problems they had.

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Fourth All India Educational Survey (1982) reported that only 6,631 villages had facilities for NFE for the age group 6-14 and 1,94,173 participants including 57,985 (29.86%) girls were participating in this age group. This accounted for only a poor percentage of around 0.5 enrolled of the out-of-school population in this age group.

A study (1982) was made on 'Non-formal Education in Uttar Pradesh' with the objective of finding the steps taken for linking formal and non-formal education. The results indicated that 32,431 boys and 16,837 girls from NFE registered at V class examination of formal primary schools in Uttar Pradesh in May 1982. 28,104 boys and 14,685 girls appeared for the examination out of which 24,564 boys (87%) and 13,202 girls (89%) passed the examination respectively.

Mullick (1982) conducted a study on the 'Development of Learning Materials for Non-formal Education of Girls in the Age Group 11-14 Years in Rural Areas.' The main objective was to develop learning materials on principles of programmed learning for NFE of girls in rural areas in the age group 11-14, on health education. The study was divided into two phases : (1) The effective tape-slide presentation for teaching illiterate children and (2) Attitude of teachers towards the use of tape-slide learning materials in NFE. The findings revealed that the tape-slide presentation was a viable means of teaching illiterates without the assistance of the teacher. Teacher trainees felt that the tapeslide materials were useful for NFE, making the lesson interesting and more useful in large classes ; that the materials could be used to teach illiterate persons but did not think that was possible, without a trained teacher and that it reduced the teachers' work load and was better than the lecture method.

The Non-formal Education Group of NCERT (1982) conducted a survey on 228 NFE centres established through its Regional Colleges of Education and Field Officers in different states. The objective of the survey was to narrate the experience of NCERT. Some of the major conclusions of the experiences were : (1) There was still some vagueness about the

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concept of NFE and about what it was expected to achieve. (2) The first objective set for NFE programme was to enable children to enter the formal school at multiple points. The experience was that children wanted to pass an examination in order to get a certificate which would give them sense of achievement. A majority of children, however did not want to join the formal school especially because the reasons for which they could not join the formal school or had dropped out still continue to exist. The second objective set for NFE programme was to bring equality and improvement in the life of children. This objective was appreciated but it was felt that it was very difficult to achieve, as it expected substantial socio-economic and cultural changes to take place at various levels. (3) It was not necessarily bound by the requirements of a formal syllabus and requisite coverage of the subject matter as in tune of formal system. But it might not be so completely separated with formal education. (4) People wanted education with a view to obtaining a certificate which was equivalent to what the formal school gave after specified years of schooling. ( ) With regard to motivation to get education at the NFE centres, the influencing aspects were : (A) The parents wanted their wards to develop minimum competencies required for lief. They could not afford to spend any amount for the education of the children rather they need financial help. (B) It was not difficult to attract children for education. It was difficult to retain them in the centres unless they were provided with a meaningful education. (C) Children were interested in passing the final examination at classes IV, V and VIII conducted by educational authorities of the formal system. (D) A very meagre percentage of children were in a position to join in formal schools. (6) The NFE teachers should be trained to teach children in an educational situation different from formal education in several respects. (7) It was not feasible for a supervisor to supervise more than 10 centres. (8) Need and problem based curriculum was appropriate for NFE. (9) Instruction at the centre might have two parts—first teaching of literacy, numeracy, environmental studies and socially useful productive work and second, discusssion on general topics of utility. (10) In the year

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1979-80, out of 978 children, 146 passed public formal examination held at classes IV or V and 105 admitted to formal schools. (11) The range of the cost of the NFE programme per child per year was Rs. 63/- to Rs. 98/- only. The mean cost was Rs. 71/- per child per year.

Grewel, Gupta and Bhargava (1984) undertook a NCERT project 'Tools and Techniques to Assess the Performance of Children.' The main objective of this project was the preparation of tools and techniques to assess the performance of children of NFE centres and formal primary schools. Test items, questionnaires, opinionnaires and rating scales were prepared with the help of functionnaries of elementary education including teachers of primary schools, field workers of the NFE centres, Assistant District Inspector of Schools and faculty members of the Regional College of Education. In all, 1,245 items were prepared in Hindi language, arithmetic, environmental studies and general knowledge. Three sets of parallel items were developed for each of the three levels—level I in NFE corresponds to class I of primary stage, level II corresponds to classes II and III and level III to classes IV and V. While preparing these items an effort was made to include there in the content of various subjects which had some bearing on some local environment. The test items were prepared taking into account the environmental factors, the curriculum of primary stage of formal schools of different states, the curriculum developed for children studying at NFE centres in the states of Madhya Pradesh, Gujarat and Maharashtra. The test items had the construct validity. They covered the content area, the abilities adequately. They included simple recall, comprehension and application items which were most appropriate to the primary stage. A rating scale was also prepared for the comparative assessment of personal qualities of children of NFE centres and formal schools. These items could also be used for research projects where the assessment of pupils of environment was one of the variables. The other tools and techniques given were : (1) Household survey schedule, (2) Cumulative record cards, (3) Questionnaire for studying the perception and participation of the community in the NFE programmes, (4) Questionnaire for studying the sociological

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aspects of children's life, (5) Questionnaire for the study of organisation and management of class, and (6) Rating scale for the study of the personal qualities of children. The important feature of the test items prepared is that they can be used for the triple purpose of education—teaching, learning and evaluation.

Sarma and Singh (1984) conducted a research study and identified various approaches/practices of NFE in voluntary organisations in Uttar Pradesh and Rajasthan. The same authors (1985) carried out a similar research study for identifying various approaches/practices of NFE in Rajasthan and Uttar Pradesh.

Venkataiah (1985) conducted a research project 'Effectiveness of Non-formal Education Programme in Chittoor District.' The main objectives of the study were : (1) To obtain the proportion of (A) drop-outs (B) time utilisation (C) coverage in the NFE centres, (2) To obtain qualitative measurements of the performance of the participants of NFE in reading comprehension, writing, vocabulary, grammar, numeracy and problem areas, (3) To find out the professional background of the teachers in NFE centres, (4) To identify the problems faced in the organisation of NFE centres, and (5) To find out the attitude of the teachers towards NFE programme. The major findings of the study were as follows : (1) Every year, as in the case of formal primary schools, the drop-out rate of girls was more than boys in NFE centres. (2) The proportion of drop-out was highest in 1980-81 and it was gradually decreasing year by year. (3) The number of working hours of the centres in a year in different blocks did not vary significantly. (4) Even after the existence of 5 years, the NFE centres under study could enrol only two-thirds of eligible clients. On the average one-third of eligible clients had yet to be covered in respective centres. (5) The mean performance of the learners in Telugu, Arithmetic and Problem Areas tests was considerably high. The higher academic performance of the learners might be due to their real motivation, longer attendance for 5 years instead of two years and kinship/friendship with the instructor. (6) 12-14 age group

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children performed better than 9-11 age group in Telugu, Arithmetic and Problem Areas tests. (7) The boys performed better than girls in all tests. (8) The performance of SC, ST learners was lower than the performance of BC and OC learners in all tests. (9) The difference between the performance of BC and OC learners in all tests was not statistically significant. In other words it was negligible. (10) The tendency of smaller the family size, higher was the performance of the children of such families in all tests was observed. (11) The children of nuclear families performed better than the children of joint families. (12) The children belonging to high income group, high literacy index and high academic achievement motivation performed better than the children of low income group, low literacy index and low academic achievement motivation. (13) No significant relationship was found between the professional qualifications, teaching experience of teachers and performance of the learners. (14) No significant association was observed between the professional qualifications, teaching experience of teachers and their attitude towards NFE. (15) The teacher variables namely professional qualification, teaching experience and attitude towards NFE had no significant effect on the rate of drop-outs in NFE centres. (16) There existed no significant relation between the attitude of teachers towards NFE and time utilisation. (17) The problems faced by the teachers in organising NFE centres were more or less similar in all the three blocks.

Jayachandrama Naidu (1986) conducted 'A Comparative Study of the Academic Achievement of the Students of Formal and Non-formal Education.' The findings showed that there existed significant difference in the academic achievement between the students of formal and non-formal education in all the performance areas namely Telugu test, Arithmetic test, test in Problem Areas and total achievement. The formal primary school children were far superior to NFE learners in all the performance areas.

Certain observations

The history of NFE for the age group 6-14 is of recent

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origin. No considerable effort was, however, made till now to either take stock of all that is happening in this vital area of social significance or to evaluate any of its aspects. Even in recent years, only a few studies have been undertaken in this field. This may be because NFE for 6-14 age group has not been established as academic disciplines in either Colleges of Education or Universities. Even today this situation is not improved very much. There are not many trained scholars in this field. This has led to meagre research output in this area. The present review is based on pioneering work done by NCERT and other individuals.

From the account given so far it may be said that there has been very little systematic and sustained effort to study the problems of NFE. The reported studies display adhoc and sporadic attempts resulting in superficial exploration. This state of affairs is common when a new discipline begins taking a shape. More rigorous designs will have to be used to obtain reliable findings. However, methodological sophistication is very much warranted. More experimental, correlational, evaluative and follow up studies to probe depths are required to unearth more useful and conclusive data.

2.2 REVIEW OF RELATED LITERATURE—NFE (15-35 AGE GROUP)

There exists lot of similarity between the NFE 6-14 age group and 15-35 age group. In order to get more insight into the problems of NFE 6-14 age group, the research studies already conducted on NFE 15-35 age group are also reviewed in this section.

2.2.1 Composition of Learners

Madras Institute of Developmental Studies (1980) reported that nearly 50 percent of the learners in Adult Education Centres (AECs) were below twenty years of age and belonged to families whose main occupation was agricultural labour or other unskilled labour. Nearly 50 percent of the learners had attended schools when young, but had relapsed into illiteracy.

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Verma, Mishra and Lal (1981) reported that 21.6 percent of male learners in AECs and 12.8 percent of female learners were school drop-outs. The representation of harijans and tribals was satisfactory. Most of the learners were engaged in the agricultural sector.

Hebsur, Aikara and Henriques (1981) found that nearly 30 percent of the learners in AECs had some prior schooling. Out of the sampled learners, 28 percent were females. There were 49 percent of the learners belonging to the SC, ST and OBC groups. Nearly half of the learners did not own any land, while 13 percent had between 10-25 acres. About one-fourth of the learners had an income of Rs. 1,000/- or below per year, while another 41 percent had between Rs. 1,001/- and Rs. 2,000/-. Agricultural labourers and domestic servants formed the largest single group (42%) while another 39 percent were farmers. About half of the learners had a low exposure to modernization.

Aikara and Henriques (1982) reported that women constituted 46 percent of the learners in AECs. Since women constituted 63 percent of the Maharashtra state's total illiterate population in the age group of 15-35 years (1971 census), their representation in the programme was not adequate as shown from their enrolment in the AECs of the state.

Mishra (1982) observed that there was adequate representation of men (55%) and women (45%) in AECs, SCs had fair representation with 28 percent. Large number of the learners were agricultural labourers and most of them joined AECs to learn reading and writing skills useful in day to day life. Adult education instructor was reported to be source of motivation by majority of learners.

Ganguli (1983) reported that so far as the participation of SC and ST learners was concerned, it was lesser in proportion to their population vis-a-vis the learners of the other backward castes of whom a good number of people were found to have been enrolled as learners. Majority of the learners were from agricultural back-ground.

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According to Aikara's (1984) report regarding the special target group of women, SCs and STs, substantial number of illiterate women were being enrolled in the AECs. Enrolment of SCs and STs in AECs had gone up. Thus, the efforts at enrolling the special target groups were fairly successful, although the Government target of 50 percent of the enrolment for these groups had not yet been achieved.

Visaria (1984) noted that a third of the learners in the AECs were of more than 35 years of age. In the target group of 15-35 years of age, proportionately more men belonged to 15-24 age group compared to 25-35, where as among women more or less the same proportion was observed in these two sub-groups. Only about a half of the learners indicated that they had never been to school as young children. Nearly a quarter had been to school for more than 3 years and gave up schooling.

2.2.2 Physical Facilities

According to the report of Aikara and Henriques (1981) some of the AECs had large areas for conducting the classes and others small. Most of the AECs had no special sitting arrangements. In as many as 83 percent of the AECs the learners sat on the floor, 12 percent of the AECs were able to provide the learners with mats for sitting. Only a meagre 5 percent of the AECs had benches for sitting. However, a large number of AECs (44%) had electric lights and small number (5%) petromax lights. About half of them (49%) had only kerosene lamps. The kerosene lamp did not always give adequate light.

Verma, Mishra and Lal (1981) reported that about 11 percent of the AECs were running under the open sky. Lanterns were used in four-fifths of AECs. Electricity was available to 7.4 percent of AECs. 5 percent of AECs had petromax lights and the rest 5 percent of AECs did not require lighting arrangement as these were held during the day time. There was no provision for seating arrangement of learners in the budget allocation of the projects. The learners in 43 percent of AECs sat on the floor while in the rest of AECs, they sat on mat or durry.

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Aikara and Henriques (1982) observed that the AECs in the sample were run in private houses, instructors' houses, local schools, open space, temples and gram panchayats.

Lal and Mishra (1982) found that a large number of AECs were located in open places. In most of the AECs lanterns were the main source of light. While seating arrangement was inadequate, space for accommodating learners in AECs was sufficient in almost all the projects. The environment in and around the AECs was found to be clean and peaceful.

The report of Madras Institute of Developmental Studies (1982) revealed that more than 60 percent of the learners had felt that the facilities provided were inadequate or unsatisfactory. The major complaints were that of inadequate space and lighting.

Harihar and Rao (1982) reported that AECs were largely located in the instructor's house, schools and other public places. In the case of women's AECs, a large majority was located in the instructor's house itself. The same author (1983) in a different study reported that a majority of the instructors ran AEC classes at home. The centres were located in one of the rooms at their houses.

Ganguli (1983) observed that in case of only half of the AECs the seating space was found to be sufficient to accommodate 30 learners. Out of the 96 AECs covered in the study, electricity was available only at 3 of them. 5 of them had petromax lights. Rest of all the AECs used lanterns. Only in about 60 percent of the AECs, the lighting arrangement was found to be sufficient. At one-third of the AECs the learners were found to be sitting on the floor.

Aikara (1984) noted that the physical facilities available at the AECs were moderate and there was room for improvement in this regard.

Ganguli (1984) felt that the sitting arrangement was not found satisfactory in majority of the AECs. Generally

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learners sat on the floor. In most of the AECs the space provided to learners for sitting purpose was found to be inadequate. The lighting arrangement was found to be satisfactory. All the AECs were found to be very clean. In most of the AECs the learners were making some noise inside the class-room. They were talking among themselves.

A longitudinal study on Adult Education Programme in Tamilnadu and its outcome (1984) reported that the physical facilities that existed were not adequate with respect to location and space. Large proportion of those who were satisfied also pointed out the inadequate lighting and poor condition of the blackboards.

Visaria (1984) observed that drinking water was generally available in AECs. The learners sat on ground in all the cases. Except for the role-up boards, there was no other furniture like chairs, tables and benches in the AECs.

According to Aikara (1985) lack of adequate space, disturbance from children and the possible need on the part of the instructor (if the AEC was located in the house of the instructor) to look after the domestic duties during the time of the class could be mentioned as some of the problems of situating the AEC in private houses.

2.2.3 Teaching-learning Materials

Hebsur, Aikara and Henriques (1981) reported that 6 percent of the AECs had no blackboards, 7 percent had no textbooks and 30 percent had no charts or posters. On the other hand, it was gratifying to see that 42 percent of the centres had a supplementary textbook, and 38 percent a workbook. Not even half of the AECs received text-books and posters in time.

Verma, Mishra and Lal (1981) felt that the supply of teaching and learning materials to AECs was reported to be satisfactory.

The report of Aikara and Henriques (1982) revealed that a

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few of the AECs in the sample did not at all receive any of the teaching-learning materials. As many as 13 percent of the AECs had no blackboard and 4 percent had no textbooks. Some of the AECs received the materials as late as in the third month or still later.

Lal and Mishra (1982) reported that the supply of some of the items of teaching-learning materials to the AECs was inadequate. The project staff attributed this to the inordinate delay from the Directorate in supplying these materials.

Shah (1983) found that not only the AECs did not receive teaching-learning materials in time but whatever was supplied fell short of requirements.

According to Ganguli (1983), though most of the AECs were reported to be using the primers, workbooks, charts, booklets and few periodicals and other teaching-learning materials, hardly any of them reported to use standard media as educational cinema etc. However, a good number of instructors reported to have arranged some educational plays and other cultural programmes with a view to entertain as well as to educate the learners.

According to Aikara (1984) majority of the AECs received the teaching-learning materials in time (i.e., within two months of the commencement). However, the administration was cautioned to take note of the fact that there were still a few AECs which did not receive some of the materials in time.

Mathew (1984) felt that there was delay in getting some of the teaching-learning materials. If the learners and instructors were not provided with the required materials in time, their interest was likely to disappear. Because of non-receipt/delayed receipt of learning materials, the adults might lose their faith in the programme.

Aikara (1985) reported that the vast majority of the AECs had got these materials. But there was no room for complacency because a few of the AECs had not been getting these

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materials at all and in the case of some others there has been undue delay in the receipt of these important materials.

2.2.4 Kind of Instructor

Pestonjee, Laharia and Dixit (1979) reported that most of the instructors in AECs were young (age group 20 to 30). Majority of them were educated either upto VIII or X class only. About 75 percent instructors were matriculates or below. About 10 percent were either graduates or post-graduates. The main occupation of the instructors was farming. Some of them were also teachers.

Madras Institute of Developmental Studied (1980) reported that a majority of the animators were young below the age of 25 and had been educated upto the secondary level. Lack of appropriate teaching-learning materials and inadequate training for animators were cited as significant weaknesses of the programme.

Hebsur, Aikara and Henriques (1981) found that there were one-fourth of women instructors in AECs. As regards educational qualification, 39 percent of the instructors had not completed the SSC, while 23 percent were educated beyond SSC. About one-third of the instructors had earlier teaching experience.

Verma, Mishra and Lal (1981) found in AECs only 16 percent of women instructors. 70 percent of instructors were from the disadvantaged sections of population—12 percent were harijans, 22.1 percent were tribals and 33.8 percent were other backward castes. About two-thirds of instructors were under-matriculates. One-fourth of them were matriculates. The rest had higher educational qualifications.

Lal and Mishra (1982) reported that there were 61 percent of men instructors and 39 percent of women instructors. Largely they were in their twenties and came from backward and scheduled castes. The occupations of the instructors were agriculture, farm labour, students and household work especially for women. While majority were middle pass, one-fourth

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were matriculates. Almost all of them were reported to be trained for the programme but duration of training programme was not uniform and ranged from 4 to 21 days.

Madras Institute of Developmental Studies (1982) reported that the animators responsible for the regular conduct of centres were largely young men and women in their twenties at the most. Majority of them have been educated at least upto the secondary school leaving stage. Significant proportion of the animators (42%) were unemployed.

Harihar and Rao (1982) observed that the instructors in AECs largely belonged to the upper castes. A majority of the instructors were young and had completed their education upto high school. Large numbers of male and female instructors were trained for specific jobs like community health work, cooperative work, tailoring, leather work, masonary and ayurvedic medical practice.

According to Ganguli (1983) the representation of the SC and ST instructors in AECs was not very encouraging. While 16 percent of instructors were from SC, those from ST were only 5 percent. The other section of the disadvantaged people in the other BCs had comparatively a better representation among the instructors, i.e., about 57 percent. 70 percent of the instructors were in the age group of 20 to 30 years. Among the female instructors a comparatively large section was from the younger age group. About two-thirds of instructors were non-matric. One-fourth of them were matriculates. 5 percent of them were under-graduates while 60 percent were graduates. Majority of the instructors were either owner cultivators or share croppers.

Aikara (1984) felt that wherever possible persons with high school education might be looked for to function as instructors because there was relationship between the achievement of the adult learners in the learning outcomes and the educational qualification of the instructor.

The findings of the sample surveys conducted by Aikara

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(1985) indicated the trend that persons with lower educational attainment were increasingly recruited as instructors. One suggestion that could be made in this context was to improve the input in the training of instructors.

2.2.5 Reasons for Attending the AECs

Bhatt and Rama Rao (1980) in their report on Adult Education for Social Change expressed that large percentage of the learners had joined AECs just because they wanted to be able to read and write. A substantially high percent of them also wanted to learn how to maintain accounts.

Verma, Mishra and Lal (1981) in their Study of the National Adult Education Programme in Bihar reported that 86.6 percent of the male learners and 88.4 percent of the female learners regarded acquisition of literacy and numeracy skills as their prime motivation for joining AECs.

Dey and Natarajan (1981) in their Evaluation of Adult Education Programme in Nine Districts of Bihar reported that most of the learners joined the programme primarily to obtain literacy skills and only a few stated that they had joined it for acquiring functional skills.

According to Verma, Lal and Mishra (1981) the main reason for the learners to join the AECs was their desire to be able to read and write. Various other reasons given by the learners included their interest in acquiring social awareness and functional skills, knowledge for development, helping children in education. These reasons may only be reflecting the responses to the external stimuli rather than their internal motivation.

Ganguli (1983) in his report on Adult Education in Bihar revealed that on an average 75 to 80 percent of the male and female learners considered acquisition of literacy and numeracy skills as their prime motivation for joining AECs. The same author (1984) also reported that learners joined the AECs for gaining social consciousness about rights and duties of citizens, acquiring knowledge for personal and social development.

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2.2.6 Reasons for Dropping out from AECs

Madras Institute of Developmental Studies (1980) reported that most of those who had dropped out of adult education programme were on account of the pre-occupation with work or domestic chores.

According to Rao, Bhatt and Rama Rao (1980) distance of the centres from the homes, pre-occupation with work during the day time, inadequate facilities at the centre and non-suitability of night time for classes were some of the major problems faced by the learners in coming to AECs.

Verma, Lal and Mishra (1981) reported that major reasons given by learners for dropping out were : migration due to job, marriage, family problems etc. Fatigue after day long hard work was found to be another main reason. Majority of them had identified 'poverty' as single major factor for their quitting AECs.

Atul Sarma and others (1981) found that the reasons for withdrawal were related to family problems and involvement in day to day works in which they were placed.

According to Madras Institute of Developmental Studies (1982) the dominant reasons for the drop-out phenomenon seemed to be pre-occupation with work and consequent irregularity in attendance. Majority of the people who dropped out, did so within the first two months of the programme.

Ganguli (1984) reported that the learners left the adult education programme due to heavy house-hold work, discouragement of parents, lack of interest, illness, financial difficulties and fear of the school teacher. In another study (1984) the same author reported that the main reasons for dropping out from AECs given by the drop-outs were related to their family problems, poverty, inadequacy of teaching-learning materials, unsuitability of the place of AEC, inconvenient timing and no future benefit in attending the AEC.

A Longitudinal Study of the Adult Education Programme in

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Tamilnadu (1984) revealed that most frequently offered reason for people dropping out was the pre-occupation with work-either domestic or otherwise. Migration, out of the village for work in the case of men, and on account of marriage in the case of women also led people to discontinue from the programme.

2.2.7 Learning Outcomes

Madras Institute of Developmental Studies (1980) reported that overtly expressed expectations of learners from AECs revolved around literacy and a majority felt that they had not achieved the desired level of competancy at the end of 10 months.

Hebsur, Aikara and Henriques (1981) felt that on the whole the performance of the learners in literacy especially in reading and writing was good. Men, learners belonging to the higher caste groups, those engaged in higher occupations, those more exposed to modernization, and those who had adequate learning materials and had some experience of prior schooling, performed better in literacy.

Dey and Natarajan (1981) observed that the performance of learners was better in reading as compared to their performance in the other two abilities. Performance in doing simple calculations was comparatively poor and needed improvement.

According to the report of Lal and Mishra (1982) majority of the learners could read and write letters, words and sentences with understanding from their primer. The performance of the adult education learners in numeracy skills was average. As regards application of literacy skills large number of learners were able to put their signature. In some cases they could calculate their wages.

The literacy assessment of Madras Institute of Developmental Studies (1982) revealed that less than 10 percent had achieved adequate levels of literacy skills. About one in every six learners could read fluently and another third of the learners

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could read with some difficulty. A little more than a third of the learners could read only the alphabets.

Harihar and Rao (1982) found that the learners' grasp of literacy was low on the whole. They were unable to proceed beyond writing a few words in a large majority of the cases. In comparison, the performance in numeracy was superior. The need to use figures in daily work was given as a reason for this. The same investigators (1982) reported in another study that performance of learners in the informal test was satisfactory. A large majority of the learners could haltingly read and write sentences. In the numeracy component, tasks like addition and subtraction were performed fairly well and tasks like multiplication and division were done haltingly.

According to Shah (1983), ex-learners did not seem to have replaced into illiteracy, though some declined in writing ability could not be ruled out. The performance of the present learners could not be termed 'inadequate'. But around two-third learners leaving the course permanently without acquiring any knowledge-not gaining anything out of the programme was a matter of grave concern.

Ganguli (1983) found that about 60 percent of the learners, filled up the basic information on their own on the schedule administered to them. About 70 percent of the learners had achieved proficiency in reading and writing sentences. The same investigator (1984) observed that the literacy achievement of the participants from different adult education projects could be considered more or less satisfactory. The numeracy achievement of the participants in average was not satisfactory. It was also observed that out of the total 31 projects covered in the study only nine were such whose achievement in numeracy could be considered to be satisfactory. Ganguli (1984) in the Fifth Appraisal of Adult Education in Bihar also reported that the over all picture relating to achievement in literacy and numeracy was not discouraging.

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2.2.8 Prediction of Factors Affecting Learning Outcomes

As reported by Hebsur, Aikara and Henriques (1981) the regression of 16 independent variables on literacy had shown that 'topics taught' figured as the most important variable having the largest BETA value (0.24). The sex composition of the AEC figured as the second most important variable (BETA =0.17) and regularity of payment of instructors remuneration as the third important variable (BETA=−0.11). All the three variables which had emerged as important variables were manipulable, that is, if these variables increased or decreased there was a corresponding increase or decrease in the performance of the AECs with regard to literacy.

According to Aikara and Henriques (1982) the regression analysis of 20 factors had shown that the learners characteristics of sex, age, caste and exposure to modernization and the AECs characteristics of contents of teaching had significant impact on the performance of the learners in literacy, functionality and social awareness. Further, experience of prior schooling had a positive influence on the acquisition of literacy skills.

Aikara (1984) found that those having no prior schooling required greater attention in the AEC. Greater efforts were needed to impart literacy to older persons. Data on the association between the learning outcomes and the AEC factors would give some clues as to what inputs in the AEC were likely to produce desired results. Some of the inputs in the AECs which were likely to produce better results in the learning outcomes were timely supply of learning materials, better physical facilities at the AECs, and instructor's education and exposure. Achievement of the adult learners in the learning outcomes of the AECs, depends on various individual and other factors.

2.2.9 Comparison Between Formal and NFE Learners

Venkataiah (1976) found that there was significant difference in the achievement of reading and writing skills between the adult education learners and third standard school children.

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The reading and writing skills of the school children were higher than the adult participants. As regards the achievement of arithmetic skills, no significant difference was observed between the adult participants and the third standard school children. Both the adult participants and third standard school children seemed to have attained the same level in arithmetic skills.

Aikara and Henriques (1982) reported that if the mean score of the students of class IV of the primary schools studied in the project was taken as the standard of reading skill, 39 percent of the adult learners in the sample acquired reading skill. If the level of the class IV students was taken as the cutting point for writing skill, 25 percent of the learners in the sample acquired the skill in writing. If the mean arithmetic skill of the class IV students was taken as the cutting point, 22 percent of the learners acquired the arithmetic skill.

According to the report of Aikara (1984) the adult learners had an average literacy score (consisting of reading and writing only) of 40 percent as against 64 and 76 percent achieved by the students of standard III and standard IV respectively. On the whole the adult learners could not achieve the level of standard III in literacy.

As per rough estimate of Aikara (1985) based on the comparison between adults and school students of standard IV, about 20 percent of all those enrolled in the AECs had been made literates through the adult education programme. It was difficult to say whether this was a satisfactory result. But it could be certainly maintained that the performance was far below expectation and a lot more needed to be done to improve the performance.

Certain Observations

In the first part of the review the studies relating to NFE 6-14 age group and in the second part of the review the studies relating to NFE 15-35 age group were dealt with. There are many common elements in both the systems of NFE (6-14 age

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group and 15-35 age group) such as the curriculum, instructional situation, inputs and resources. They are working only on part-time basis. The learners are considered to be self-motivated. They are like single teacher schools. Centres are usually poor in their physical conditions. The centres are mainly meant for economically poor and socially disadvantaged classes.

In both the systems of NFE (6-14 age group and 15-35 age group), though the learners belong to different age groups, the conditions in respect of learners, instructors and centres are more or less similar. It is likely that the research findings obtained from the NFE (15-35 age group) may hold good with the NFE (6-14 age group). But there are no emperical studies to confirm these views. Therefore, it is decided to include the review of related literature of NFE (15-35 age group) pertaining to the variables—composition of learners, physical facilities and teaching-learning materials available at the AECs, kind of instructors, reasons for attending AECs, reasons for dropping out from AECs, learning outcomes and comparison of academic achievement between formal and NFE learners.

It may be remembered that though these studies were based on the sample of subjects 15-35 age group, an understanding of the review of these findings would certainly provide an insight for the better understanding of the present problem.

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CHAPTER III

Statement of the Problem and Hypotheses

In this chapter the problem is stated. The scope, objectives, hypotheses, importance and limitations of the study and definitions of certian terms used in the study are given.

3.1 STATEMENT OF THE PROBLEM

The present investigation is "An Evaluative Study of Certain Aspects of Non-formal Education Programme for Children Aged 9-14 Years in Rayalaseema Area."

3.2 SCOPE OF THE STUDY

The present study attempts to evaluate the aspects—(1) composition of the NFE learners, (2) inputs available at the NFE centres—physical facilities, teaching-learning materials and kind of instructors, (3) reasons for attending the NFE centres, and reasons for dropping out from the NFE centres, and (4) learning outcomes of the NFE centres in terms of the performance of the learners in Telugu, Arithmetic and Problem Areas tests; the influence of sex, age, caste, occupation of parent, size of land holding of parents, development of locality, income of parents, academic achievement motivation of the learners, and category of drop-out/non-starter (experience of prior scoring); professional qualifications, teaching experience and attitude of the instructors towards NFE; physical facilities and teaching-learning materials avai-

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lable at the NFE centres on the academic achievement of NFE learners. The study also attempts to identify the factors that predict the academic achievement of the learners. A comparison is also made between the academic achievement of formal and non-formal learners.

3.3 OBJECTIVES OF THE STUDY

The main objectives of the study are :

(1) To ascertain the composition of the NFE learners in terms of (A) sex (B) age (C) caste (D) occupation of parents (E) size of the land holding of parents and (F) development of locality,

(2) To find out the difference in the inputs such as physical facilities, teaching-learning materials and kind of instructors available at the NFE centres, and to know the attitude of teachers towards NFE,

(3) To find out the reasons for attending the NFE centres and dropping out from the NFE centres,

(4) To ascertain the learning outcomes of the NFE centres in terms of the performance of the learners in (A) Telugu (B) Arithmetic and (C) Problem Areas tests,

(5) (A) To find out the influence of the variables relating to the learners, instructors and the NFE centres on the academic achievement* of the NFE learners,

(B) To identify the factors relating to the learner, instructor and the NFE centre which predict the performance of the learners, and

(6) To compare the performance level of the IV stage NFE learners with those of V standard formal primary school pupils.

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*Academic achievement and academic performance are interchangeably used in this study.

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3.4 HYPOTHESES OF THE STUDY

(1) The availability of physical facilities does not significantly vary among the four districts of Rayalaseema.

(2) The availability of teaching-learning materials does not significantly vary among the four districts of Rayalaseema.

(3) The professional qualifications do not significantly vary among the groups of instructors in the four districts of Rayalaseema.

(4) The teaching experience among the groups of instructors in the four districts of Rayalaseema does not significantly vary.

(5) There is no significant difference in the attitude towards the NFE between male and female instructors.

(6) There is no significant difference in the attitude towards NFE between the two age groups of instructors.

(7) There is no significant difference in the attitude towards NFE between instructors with and without professional qualifications.

(8) There is no significant difference in the attitude towards NFE between instructors with less and more teaching experience.

(9) The ranking of reasons given by the NFE learners for attending the NFE centres does not significantly vary among the groups of four districts of Rayalaseema.

(10) The ranking of reasons given by the NFE learners for attending the NFE centres does not significantly vary between boys and girls.

(11) The ranking of reasons given by the learners for attending the NFE centres does not significantly vary between the two age groups.

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(12) The ranking of reasons given by the learners for attending the NFE centres does not significantly vary among different caste groups.

(13) The ranking of reasons for attending the NFE centres does not significantly vary among learners belonging to different occupational groups.

(14) The ranking of reasons for attending the NFE centres does not significantly vary among learners from families with different sizes of land holding.

(15) The ranking of reasons for attending the NFE centres does not significantly vary among learners from different levels of development of locality.

(16) The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary among groups of four districts of Rayalaseema.

(17) The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary between boys and girls.

(18) The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary between the two age groups.

(19) The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary among different caste groups.

(20) The ranking of reasons for dropping out from NFE centres does not significantly vary among drop-outs belonging to different occupational groups.

(21) The ranking of reasons for dropping out from NFE centres does not significantly vary among drop-outs from families with different sizes of land holding.

(22) The ranking of reasons for dropping out from the NFE centres does not significantly vary among drop-outs from different levels of development of locality.

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(23) There is no significant influence of variables pertaining to learner—(A) sex (B) age (C) caste (D) parents' occupation (E) parents' size of land holding (F) development of locality (G) parents' income (H) academic achievement motivation (I) category of drop-out/ non-starter (experience of prior schooling) on each one of the achievement areas—Telugu, Arithmetic, Problem Areas and Total Academic Achievement.

(24) There is no significant influence of variables pertaining to the instructor—(A) professional qulifications (B) teaching experience and (C) attitude towards NFE on each one of the achievement areas—Telugu, Arithmetic, Problem Areas tests and Total Academic Achievement.

(25) There is no significant influence of variables relating to the NFE centre—(A) physical facilities and (B) teaching-learning materials on each one of the achievement areas—Telugu, Arithmetic, Problem Areas tests and Total Academic Achievement.

(26) The contribution of each one of the factors relating to the NFE learners (age, parents' size of land holding, parents' income, development of locality and academic achievement motivation), instructors (attitude towards NFE), and NFE centres (Physical facilities and teaching-learning materials) in predicting the academic achievement is not significant.

(27) There is no significant difference between the mean performance of NFE learners and formal primary school pupils in Telugu test.

(28) There is no significant difference between the mean performance of NFE learners and formal primary school pupils in Arithmetic test.

(29) There is no significant difference between the mean performance of NFE learners and formal primary school pupils in Problem Areas test.

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(30) There is no significant difference between the mean performance of the NFE learners and formal primary school pupils in Total Academic Achievement.

3.5 NEED AND IMPORTANCE OF THE STUDY

The working group on universalisation of elementary education set up by the Ministry of Education, Government of India, at the instance of the Planning Commission in its interim report submitted in 1978 recommended "the goal of universal elementary education can and should be achieved through full time schooling and part time education, but either should be done without sacrificing the basic minimum knowledge of literacy, numeracy and inculcation of social and civil responsibilities."

As per this requirement, the NFE programme has to maintain certain standards. An effort is made in the study to assess how far the NFE is maintaining the required standards in the language, arithmetic and problem areas.

There are certain other advantages of the study. Since the implementation of the programme requires a big financial commitment on the part of the Government of India and the State Government of Andhra Pradesh, it is necessary to find out how effectively the programme is functioning. There is need for objective and systematic evaluation of certain important aspects of the programme. The results of such study will provide the administrators scientifically obtained information. It will help them to know the weak and strong points of the programme. The results will facilitate them to take correct decisions, to formulate or revise policies and to modify actual operations of the programme. It is expected that the findings of the study would be used in organising the NFE programme so as to make the participants attain higher levels of academic performance. It is also useful to provide feed back information which in turn facilitates the effective implementation of the programme.

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3.6 LIMITATIONS OF THE STUDY

(1) Only the children who have reached IV stage of NFE of 1984-85 batch (it may be noted that only in the case of the analysis of composition of NFE learners, all the learners in all the stages of 80 selected NFF centres are included) and the students who have reached V standard in the formal schools in the same year are included in the sample.

(2) Only 400 IV stage NFE learners, 200 V standard formal students, 160 drop-outs from NFE centres and 80 NFE instructors are included as sample for the study.

(3) The study is confined to only one region of Andhra Pradesh namely Rayalaseema.

(4) Only a selected number of variables related to the learners, instructors and NFE centres are included in the study. A number of other variables could not be considered for obvious reasons.

3.7 OPERATIONAL DEFINITIONS OF CERTAIN TERMS AND CONCEPTS

(1) *Non-formal education.* Non-formal education is defined as "an organised educational activity outside the formal system, operating as an important feature of broad activity that is intended to clients of drop-outs and non-starters of 6-14 years age group."

In the state of Andhra Pradesh the NFE is intended for the education of school drop-outs and non-starters of the age group 9-14 years.

(2) *Formal education.* Education that is conventionally given in an orderly, planned and systematic manner is referred to formal education.

The V standard students of formal primary schools are referred in the study as formal students or learners.

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(3) *Stages in NFE.* Phase I of NFE consists of I-IV stages. Each stage is having a duration of six months for education and the knowledge one gains by the end of IV stages is to be approximately equal to that of V standard of formal primary school. Therefore, in this study the IV stage learners are compared with the V standard primary school children.

(4) *Learners.* A learner in the study is a child who has been on the live register in the IV stage of NFE or in the V standard of formal primary schools.

(5) *Drop-out.* The term drop-out is used to a pupil who left the formal primary school before completing V standard and who left the NFE centre before completing IV stage.

(6) *Non-starters.* Non-starters are such of the children in the age range 6-14 years who were not enrolled in any formal primary school. They are now attracted by NFE centres for the improvement of their education.

(7) *Academic achievement.* According to Good (1959) academic achievement is "knowledge attained or skills developed in the school subjects usually designed by test scores or by marks assigned by teachers or by both."

(8) *Problem areas.* NFE is generally considered as problem oriented education. In consonance with this idea the problems which an individual faces are traced to sixteen problem areas and the syllabus is woven around these problem areas from II to IV stage.

(9) *Academic achievement motivation.* Achievement motivation in defined as "the desire to excel regardless of social reward and the desire of winning or doing better than some one else." (McClelland, 1966).

Achievement motivation is a general phenomenon related to any field whereas academic motivation is specifically related to academic courses. The academic achievement motivation in this study refers to the motivation to achieve in academic courses.

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(10) *Size of land holding.* Land holding means the total area of land owned by the family. Land owned was converted into standard acres on the basis of 1973 Andhra Pradesh Land Reform Act and Regulations.

(11) *Development of locality.* It indicates the level of development of the locality where the NFE centre is located. The development is ranked on a 0-24 point scale. To know the level of development of the locality a scale is constructed using certain facilities, eminities and establishments available within or around the locality.

(12) *Physical facilities.* The important physical facilities at the NFE centres considered in this study are building, sitting arrangements, lighting arrangements, furniture, cleanliness etc. Physical facilities available in the centre are found out with the help of a questionnaire to the teacher.

(13) *Teaching-learning materials.* The following are the teaching-learning materials expected to be available at the NFE centres : slates, slate pencils, blackboard, chalk-pieces, Telugu text-books, arithmetic text-books, problem areas text-books, note-books, pencils, workbooks, maps, charts, globe, flash cards and models. Which of the teaching-learning materials available in the centres and how far are they adequate is found in the study with the help of a questionnaire to the teacher.

(14) *Attitude.* Thurstone (1946) defined an attitude as "the degree of positive or negative affect associated with some psychological object." By psychological object Thurstone meant any symbol, phrase, slogan, person, institution, ideal or idea towards which people can differ with respect to positive or negative effect. Nunnally (1959) defined attitude as "predispositions to react positively or negatively in some degree towards an object, institution or class of persons."

In this study the attitude is defined as the predisposition to react positively or negatively in some degree towards NFE.

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CHAPTER IV

Description of the Tools of Research

This chapter gives the details of the development of research tools employed in the study. The construction of achievement tests in Telugu, Arithmetic and Problem Areas and establishment of their reliability and validity; construction of academic achievement motivation inventory, check-lists, questionnaire, schedules, attitude scale and development of locality scale and establishing their reliability and validity are described.

4.1 TEST DEVELOPMENT

4.1.1 Planning the Tests

The achievement tests have to be commonly used for both formal and non-formal learners to compare their academic achievement. The investigator had to develop the tools as no such tools were in existence. Efforts were made to compare the syllabi of formal primary education (I to V classes) and syllabi of phase I of NFE (I to IV stages). The investigator had gone through the following books used from I to V classes of formal education and I to IV stages of NFE.

Books for formal primary schools

I class—Telugu
II class—Telugu
III class—Telugu, Arithmetic, Environmental Studies I & II

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IV class—Telugu, Arithmetic, Environmental Studies I & II
V class—Telugu, Arithmetic, Environmental Studies I & II

Books for NFE

I stage—Telugu and Arithmetic
II stage—Telugu, Arithmetic and Problem Areas
III stage—Telugu, Arithmetic and Problem Areas
IV stage—Telugu, Arithmetic and Problem Areas

The researcher critically studied 'Adhyapaka Darsini' (Teachers' Guide) supplied to the formal primary school teachers and 'Shikshana Deepika' (Training Manual) supplied to the instructors of NFE centres. Thorough discussions were held with experts in test construction about the various item formats, their advantages and disadvantages. The investigator observed the functioning of NFE centres for one year (1982-83) for better understanding of the programme.

After making a close comparative study of the examination question papers of the formal and non-formal education and the exercises given in the text-books, the type of questions which were common in both the systems were included in these tests. The following criteria as suggested by Grewal and others (1984) were also kept in mind in writing the items :

(1) The items should have a bearing on local environmental factors such as local language, customs and other characteristics of the area.

(2) The items to be included should belong to knowledge, understanding and application categories.

(3) To include items based on the remaining three categories of objectives—analysis, synthesis and evaluation would not be appropriate at this stage.

(4) Items should be prepared taking into account individual differences among the students.

(5) Level to be taken into consideration were : classes I and II of formal primary school corresponds to stage

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I of NFE, class III corresponds to stage II, class IV corresponds to stage III and class V corresponds to stage IV. The items may therefore be prepared according to the needs of these four stages of NFE learners.

The main content areas common for both formal and non-formal education were identified and major course instructional behavioural objectives were specified. The tentative blue prints were prepared and sent to the teachers who happened to work as teachers in the formal primary schools and also as instructors in the NFE centres for giving their opinion about the items and weightages to be given to each content area. The final blue prints were prepared after taking into consideration their opinions.

4.1.2 Preparing the Tests

The blue prints gave an estimate of the number of items to be used, the type of items to be used and the amount of emphasis to be given to each.

Keeping the test blue prints for guidance, items were written to cover the designated content skill areas. Many more items were written initially than would be included in the final form of the test because many items would be eliminated in the process of the test analysis.

In writing the items, a determined effort was made to present situations and language relevant to the experiences of the learners. The first draft of items were then reviewed, criticised and revised after thorough discussion with the guiding professor and other experts for content validity. Most of the revisions involved in eliminating ambiguities, clarifying wordings and strengthening weak alternatives. The distractors of multiple choice type items were distributed equally such that they should also be in a position to discriminate well between individuals. Each test consisted of a few easy and a few difficult items. Care was taken to include questions of appropriate levels of difficulty. A scoring key was simultaneously prepared along with the test items. Provision was also made for a convenient written record of the students.

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Administration of the Tryout Test

A sample of 15 students who were about to complete V standard from 3 formal primary schools were randomly selected for administering the tryout tests and studying possible ambiguities and difficulties in the wording of the tests. In the light of this experience some items were entirely discarded and some slight changes were made to improve clarity in the wording of some items. Clear and detailed instructions were prepared for administering the tests. Detailed instructions were also given on how to make the test.

4.1.3 Pilot Study

The formal school system is well established one whereas the NFE is of recent origin. The major objective of the NFE is to provide such standards which are equivalent to formal education and to provide multiple entry to the NFE learners in the formal education. Therefore it is appropriate to standardise the tests by administering them on the formal primary school pupils.

A pilot study was carefully planned and carried out in 25 randomly selected formal primary schools of Chittoor district. 15 students who were about to complete V standard were randomly drawn from each selected school for the purpose of pilot study. The pilot form of the tests was administered in each school on a group of 15 students at a time. Thus the data were collected from 370 pupils by administering the pilot study and by maintaining normal conditions in the schools.

4.1.4 Item Analysis

Item analysis is useful to find the difficulty level and discrimination power and ultimately for the selection of the best items to compose the final test form.

Item Difficulty Index

The difficulty values of the items were calculated using the formula

$$D = \frac{R}{T}$$ (Mehrens and Lehmann, 1972)

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where D=Item Difficulty

R=Number of subjects who answered the item correctly

T=Total number of subjects who tried the item (370)

Preparing Data for use of Chart

(1) After computing the total score for each individual in each test the answer scripts were arranged from the highest score to the lowest score.

(2) The best 27 percent of the answer scripts (100) were kept in one group (high group, P_h). The poorest 27 percent of the answer scripts (100) were kept in the other group (low group, P_l).

(3) The middle group consisting of 46 percent of the answer scripts were kept aside since the two extreme groups, high and low, were needed for item analysis.

For each item, the number of right responses were added and the figure indicating the total right responses was noted for both the high and low groups.

Psychometric Research and Service Chart (1962) showing the Davis difficulty and discriminating indices for item analysis was used to find the difficulty and discrimination indices.

4.1.5 Item Selection

The final selection of the items was made on the basis of (1) Item discrimination and (2) Item difficulty.

Item Discrimination

According to Garrett (1958) "..... as a general rule items with validity indices of 0.20 or more are regarded as satisfactory." Following this suggestion the items having the internal consistency discrimination indices of 0.20 or more were retained.

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Difficulty Value

The distribution of items based on difficulty value is orbitrary and not final. Most of the items in the present test fell between 20 and 80 which is a widely accepted range. Under these conditions not a single item has been dropped on account of its being too easy or too difficult.

4.1.6 Arrangement of the Items in the Final Tests

The points which were taken into consideration while re-arranging the items in the final form of the tests were :

(1) Difficulty value of each item and
(2) The type of question in a test to which the item belonged.

Copies of the final tests used in the study are shown in Appendix-A except the Telugu test.

4.2 CONSTRUCTION OF TELUGU TEST

4.2.1 Topics Identified

The topics identified as common for both formal (I to V classes) and non-formal education (I to IV stages) are as follows: Gandhi Mahatma, Sarojini Naidu, Cow, Occupations, Post Office, Poems of Vemana, Andhra Kesari, Patriotism, Pothana, Nagarjunasagar, Makara Sankranthi and Festival (Deepavali). The test items were prepared from these common topics as shown in Table 1.

The Telugu test consisted of 10 types of items viz., answering the question with one word, selecting the right answer, writing the suitable word in the blank, reading comprehension, writing a poem from memory, writing meanings to the words given, writing plural numbers, writing opposite words, writing own sentences using the words given and writing dictation.

Telugu test as a whole assesses the skills of reading, writing and reading comprehension which are very essential for any language.

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TABLE 1
Table of Specifications for Telugu Test

Type of questions	Knowledge				Understanding				Application				Total
	FB	OA	MC	WS	FB	OA	MC	WS	FB	OA	MC	WS	
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1. Answering the question with one word	—	(1), 2, (3), 4, 5, 6, 7, 8, 9, 10	—	—	—	—	—	—	—	—	—	—	10
2. Selecting the right answer	—	—	3, 4, (5), 6, (7), 8, 9, 10	—	—	—	1, (2)	—	—	—	—	—	10
3. Writing the suitable word in the blank		1, (2), 3, 4, 5, 6, (7), 8, 9, (10)	—	—	—	—	—	—	—	—	—	—	10
4. Reading comprehension	—	—	—	—	—	—	1, 2, 3, 4, 5, 6	—	—	—	—	—	6
5. Writing a stanza (from memory)	—	—	—	4*	—	—	—	—	—	—	—	—	4

Table 1 Contd.

1	2	3	4	5	6	7	8	9	10	11	12	13	14
6. Writing meanings to the words given	—	1, 2, 3 4, (5), 6, 7, 8, 9, 10	—	—	—	—	—	—	—	—	—	—	10
7. Writing plural numbers	—	1, 2, 3, 4, 5, 6, 7, (8), (9), 10	—	—	—	—	—	—	—	—	—	—	10
8. Writing opposite words	—	1, 2, (3), 4, 5, 6, 7, 8, 9, 10	—	—	—	—	—	—	—	—	—	—	10
9. Writing own sentences using the words given	—	—	—	—	—	—	—	—	—	—	—	1,2, (3), 4, 5, 6, 7, (8), (9), (10)	10

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10. Writing dictation	—	—	—	—	—	—	—	1, 2, 3, 4, 5, 6, (7), (8), (9), (10)	—	—	—	—	10
Total	10	40	8	4	—	—	8	10	—	—	—	10	90

* : This poem is a unit. 4 scores are given for the four lines of the poem

FB : Fill up the blanks

OA : One word answers

MC : Multiple choice

WS : Writing a sentence

The item numbers indicated in brackets are discarded from the pilot study

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4.2.2 Description of Items

Item I : *Answering the question with one word*

This type of item helps to assess not only the knowledge of the content in the Telugu text-books but also to assess the ability to write the answers which the learners knew.

Scoring : If the answer—one word was written correctly a score was given for it If the answer—one word was not written, or was wrongly written or the word was written by omitting a letter or letters with substitution and/or inscription of other letters, no score was given to that word.

Item II : *Selecting the right answer*

The second item of the test was selecting the right answer from among the three distractors given under the question. This type of question helps in discriminating the rigth answer and the wrong answers.

Scoring : Each correct response was given a score of one.

Item III : *Writing the suitable word in the blank*

This type of item helps in completing the sentence by writing a meaningful word that fits into the sentence.

Scoring : A suitable word written without mistake was given a score.

Item IV : *Reading comprehension*

The passage given for reading comprehension consisted of seven sentences. Reading comprehension is a power to understand and remember what is read. Suitable questions were asked on the passage used for reading to evolve this type. The questions were of the multiple choice response type each having three alternatives only one of which was correct. The questions that were included under comprehension were : (1) grasping the details, (2) grasping the central idea, and (3) making logical inferences.

Scoring : Each correct response was given a score of one.

Item V : *Writing a stanza*

The fifth item of the test was writing a stanza consisting of four lines from the memory of the child. Learning a stanza

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byheart and reproducing it will enable the children to master the language skills more and more.

Scoring : A score was given for each line of the stanza if it was written correctly. If there was any mistake/mistakes in spelling, grammar or any other aspect, the line was treated as incorrect.

Item VI : *Writing meanings to the words given*

This item helps to test the vocabulary of the children.

Scoring : Each correct response was given a score.

Items VII and VIII : *Writing plural numbers and opposite words*

These items help of assess the knowledge of grammar—plural numbers and opposite words.

Scoring : Each correct response was given a score.

Item IX : *Writing own sentences*

Under this item the subjects have to make their own sentences by using the words given. This item helps to assess the application of the knowledge of the language of the students.

Scoring : A sentence written without any mistake was given a score :

Item X : *Dictation*

The last item of the test was writing dictation consisting of a passage of 10 sentences. This item helps in assessing the writing ability of the subjects when a few sentences are dictated to them.

Scoring : The sentence was taken as the basic unit for scoring. Credit was given if atleast two-thirds of total number of words in a sentence were written correctly.

4.2.3 Final Form to Telugu Test

The procedure described for item analysis in the previous pages was followed. The scores of grouped data of the pilot test are given in Table 2. The 'PQ' values of the items in the

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pilot test are given in Appendix-B. The difficulty and discrimination indices of the items included in the pilot test are given in Appendix-C.

TABLE 2
Frequency Distribution of Scores—Telugu Test (Pilot Study)

Class Interval	Mid-points	Frequency	d	fd	fd^2
1—10	5.5	25	−4	−100	400
11—20	15.5	31	−3	− 93	279
21—30	25.5	45	−2	− 90	180
31--40	35.5	62	−1	− 62	62
41—50	45.5	63	0	0	0
51—60	55.5	60	1	60	60
61—70	65.5	48	2	96	192
71—80	75.5	28	3	84	252
81—90	85.5	8	4	24	96
		N=370		Σfd=−81	Σfd^2=1521

Mean=43.31 S.D.=20.16

Table 3 gives a glance of the number and category of items in the pilot and final tests.

TABLE 3
Number of Items in Pilot and Final Telugu Tests

Category of item	No. of items in the pilot study	No. of items discarded	No. of items in the final study
Knowledge	62	11	51
Understanding	18	5	13
Application	10	4	6
Total	90	20	70

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4.3. CONSTRUCTION OF ARITHMETIC TEST

4.3.1 Topics Identified

The topics identified as common for both formal primary schools (I to V classes) and NFE centres (I to IV stages) are as follows : Numeration, Addition, Subtraction, Multiplication, Division, Fractions, Indian Money, Measurement of Length, Measurement of capacity, Measurement of weight, Measurement of Time, Geometry and Business Mathematics.

All the test items were prepared from these topics as given in Table 4. Only objective type of questions viz., fill up the blanks, one word answer type questions and multiple choice type questions were prepared covering all the stages and all the areas identified. All the questions fell under three categories namely knowledge, understanding and application.

4.3.2 Description of Items

Type I : *Fill up the blanks*

This item—fill in the blanks with a numerical value involves simple addition, subtraction, multiplication and division.

Type II : *One word answers*

Each item under this type was stated as a direct question. Each question required one word/numerical value.

Type III : *Multiple Choice questions*

Each item was stated as a direct question or statement. Four responses were given under each item. Care was taken to avoid giving clues to the correct answer while preparing the four responses for each item. The correct answers were randomly assigned throughout the test approximately with equal frequency.

Scoring : A credit was given for each answer when it was correct for all types of questions.

4.3.3. Final Form of Arithmetic Test

The procedure described for item analysis in the previous pages was followed. The scores (grouped data) of the pilot

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TABLE 4

Table of Specifications for Arithmetic Test

Area	Stage	Knowledge			Understanding			Application			Total
		FB	OA	MC	FB	OA	MC	FB	OA	MC	
1	2	3	4	5	6	7	8	9	10	11	12
1 Numeration and Notation	I	—	—	—	—	—	1	—	—	—	1
	II	4	—	—	5	—	38	—	—	—	2
	III	(10)	—	17	—	13	18	—	—	—	4
	IV	—	20	39	—	—	—	39	—	—	3
2 Addition	I	1	—	—	(2)	—	—	—	—	—	2
	II	—	8	—	—	7	—	—	—	9	3
	III	—	—	—	—	14	—	—	—	(19)	2
	IV	—	—	—	—	—	—	—	—	40	1
3 Subraction	I	3	1	—	—	—	—	—	—	—	2
	II	6	6	—	—	—	—	—	—	10	3
	III	—	15	—	—	—	20	—	—	—	2
	IV	—	—	—	—	19	—	—	—	—	1

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4. Multiplication and Division	I	—	—	—	—	—	—	—	—	—	—
	II	—	—	—	—	—	—	—	—	—	—
	III	11, 12	—	—	—	—	—	—	—	(23)	3
	IV	17	—	—	—	—	(41)	—	—	42	3
5. Fraction	I	—	—	—	—	—	2	—	—	—	1
	II	—	—	—	—	—	(11)	—	—	—	1
	III	13	—	26	—	—	24, 25, 34, 35, 37	—	—	—	7
	IV	(18, 19)	—	(43)	—	—	—	—	—	(49)	4
6. Indian Money	I	—	2	3	—	3	—	—	—	—	3
	II	—	—	—	—	9	(8)	—	—	12	3
	III	—	—	—	—	—	—	—	—	27	1
	IV	—	—	—	—	—	—	—	—	44	1
7. Units of length, Capacity and Weight	I	—	—	5,6	—	(4)	—	—	—	—	3
	II	7, 8	—	—	—	—	—	—	10	15, 16	5
	III	—	—	—	14	—	31	—	—	(30), 32, (33)	5
	IV	—	—	—	—	—	—	—	—	45, (47)	2
8. Measurement of Time	I	—	5	—	—	—	7	—	—	—	2
	II	9	11	—	—	(12)	—	—	—	—	3
	III	15	17	—	—	—	—	—	18	—	3
	IV	—	—	—	—	—	—	—	—	—	—

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Table 4 Contd.

1	2	3	4	5	6	7	8	9	10	11	12
9. Geometry	I	—	—	—	—	—	—	—	—	(4)	1
	II	—	—	—	—	—	—	—	—	—	—
	III	—	16	—	—	—	29	—	—	—	2
	IV	(20)	—	—	—	—	—	—	—	(46)	2
10. Business Mathematics	I	—	—	—	—	—	—	—	—	—	—
	II	—	—	—	—	—	—	—	—	13, 14	2
	III	—	—	—	—	—	—	16	—	21, 22, 28, (36)	5
	IV	—	—	—	—	—	—	—	—	48, (50)	2
	Total	16	10	7	3	8	16	1	2	27	90

FB : Fill up the blanks

OA : One word answers

MC : Multiple choice

The item numbers indicated in brackets are discarded from the pilot study

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test are given in Table 5. The 'PQ' values of the items in the pilot test are given in Appendix-B. The difficulty indices and discrimination indices included in the pilot study are given in Appendix-C.

TABLE 5
Frequency Distribution of Scores—Arithmetic Test (Pilot Study)

Class Interval	Mid-points	Frequency	d	fd	fd^2
1—10	5.5	10	−5	−50	250
11—20	15.5	27	−4	−108	432
21—30	25.5	27	−3	−81	243
31—40	35.5	44	−2	−88	176
41—50	45.5	65	−1	−65	65
51—60	55.5	69	0	0	0
61—70	65.5	60	1	60	60
71—80	75.5	41	2	82	164
81—90	85.5	27	3	81	243
		N=370		$\Sigma fd = -169$	$\Sigma fd^2 = 1633$

Mean=50.93 S.D.=20.51

Table 6 gives a glance of the number and category of items in the pilot and final tests.

TABLE 6
Number of Items in the Pilot and Final Arithmetic Tests

Category of item	No. of items in the pilot study	No. of items discarded	No. of items in the final study
Knowledge	33	4	29
Understanding	27	6	21
Application	30	10	20
Total	90	20	70

Final form of the Arithmetic Test is given Appendix-A

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4.4 CONSTRUCTION OF TEST IN PROBLEM AREAS

4.4.1 Topics Identified

The terms 'Science' and 'Social Studies' are retermed as 'Environmental Studies I and II' in formal primary schools and 'Problem Areas' in NFE. The topics identified as common for both formal primary schools—Environmental Studies for classes III to V, and NFE centres—Problem Areas for stages II to IV are as follows: Food, Water, Clothing, Housing, Health and Hygiene, Plants and Animals, Solar System, Facilities of Transport and Travel, Means of Communication, National Natural Resources, Development of the Society, Government and Citizenship and Nationalism.

Items based on knowledge, understanding and application categories from all the areas identified were included as given in Table 7. All the items fell under three types viz., fill up the blanks, one word answer type questions and multiple choice type questions.

4.4.2 Description of Items

Type I : *Fill up the blanks*

This type of item requires completing the sentence with a suitable and meaningful word from the knowledge of the content related to the problem areas.

Type II : *One word answers*

Each item under this type was stated as a direct question in the area of social studies or science. Each answer was a single word.

Type III : *Multiple choice questions*

For each item under this type three alternative responses were given, out of which one was correct. The application of this type of items presupposed the ability to read on the part of the subjects as well as the knowledge of pertinent information in science and social studies transmitted to them in the course.

Scoring : A credit was given for each answer when it was correct.

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TABLE 7

Table of Specification for Test in Problem Areas

Area	Stage	Knowledge			Understanding			Application			Total
		FB	OA	MC	FB	OA	MC	FB	OA	MC	
1	2	3	4	5	6	7	8	9	10	11	12
1. Food and Water	II	1, 4, 8	—	(18), (29)	—	—	(1), 8, 9, (16), (17)	—	(4)	19	12
	III	(13)	—	(53), 54	—	—	52	—	—	55, 56	6
	IV	—	—	—	—	—	—	—	—	(67), (68)	2
2. Clothing and Housing	II	5, 9	—	5, (23), (24)	—	—	(10), (21), 22	—	—	(20)	9
	III	11, 12	—	40, (41), 42, (43), (59)	—	—	57, 58	—	—	—	9
	IV	—	—	—	—	—	—	—	—	70	1
3. Health and Hygiene	II	—	—	—	—	—	—	—	—	(25)	1
	III	—	11	(45), 46, (60)	—	—	—	—	—	39, 44	6
	IV	19	—	83, 84	—	—	—	—	—	—	3

Table 7 Contd.

1	2	3	4	5	6	7	8	9	10	11	12
4. Plants and Animals	II	(6)	—	11, 13, 27	—	—	(6), (7), (14)	—	5	12	9
	III	14, 15	—	35, 61	—	—	(34)	—	—	(62)	6
	IV	—	16, 17, (20)	73, 78, 79, (89)	—	—	74, 77	—	—	—	9
5. Solar System	II	2,7	—	(3), (26), (30)	—	—	(2)	—	—	(4)	7
	III	—	6, 7, (8), 15	(47)	(10)	—	—	—	—	—	6
	IV	—	—	85, (86)	—	—	(63), 64, (65), 66, (87)	—	—	—	7
6. Transport and Communication	II	—	—	—	—	—	—	—	—	15, 28	2
	III	—	—	(36)	—	10	(37), 51	—	—	—	4
	IV	—	—	(75)	—	—	—	—	—	76	2
7. National Natural Resources	II	—	—	—	—	—	—	—	—	—	—
	III	—	—	(38), 48, 49	—	12	(50)	—	—	—	5
	IV	—	—	(82)	—	—	—	—	19	—	2

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Society and Nationalism	II	(3)	(1), 2 (3)	—	—	—	—	—	—	—	4
	III	—	(9), 13, (14)	(31), 32, (33)	—	—	—	—	—	—	6
	IV	(16), 17, 18, 20	18	(71), 72, 80, (81), 88, (90)	—	—	(69)	—	—	—	12
	Total	19	15	47	1	2	27	—	3	16	130

FB : Fill up the blanks

OA : One word answers

MC : Multiple choice

The item numbers indicated in the brackets are discarded from the pilot study

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4.4.3 Final Form of Test in Problem Areas

The procedure described for item analysis in the beginning of this chapter was followed. The scores (grouped data) of the pilot test are given in Table 8. The 'PQ' values of the items in the pilot test are given in Appendix-B. The difficulty indices and discrimination indices of the items included in the pilot test are given in Appendix-C.

TABLE 8
Frequency Distribution of Scores—Test in Problem Areas (Pilot Study)

Class Interval	Mid-points	Frequency	d	fd	fd^2
1—10	5.5	2	—6	—12	72
11—20	15.5	3	—5	—15	75
21—30	25.5	4	—4	—16	64
31—40	35.5	13	—3	—39	117
41—50	45.5	28	—2	—56	112
51—60	55.5	37	—1	—37	37
61—70	65.5	73	0	0	0
71—80	75.5	67	1	67	67
81—90	85.5	50	2	100	200
91—100	95.5	36	3	108	324
101—110	105.5	26	4	104	416
111—120	115.5	25	5	125	625
121—130	125.5	6	6	36	216
		N=370		Σfd=365	Σfd^2=2325

Mean=75.39 S.D.=23.05

Table 9 gives a glance of the number and category of items it the pilot and final tests.

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TABLE 9
Number of Items in Pilot and Final Tests in Problem Areas

Category of items	No. of items in pilot study	No. of items discarded	No. of items in final study
Knowledge	81	36	45
Understanding	30	17	13
Application	19	7	12
Total	130	60	70

Final form of the test in Problem Areas is given in Appendix-A.

4.5 ESTABLISHMENT OF RELIABILITY AND VALIDITY OF ACHIEVEMENT TESTS

4.5.1 Reliability of Tests

Several methods are used to estimate the reliability of achievement tests. The more common ones reported in test manuals are : (1) measures of stability, (2) measures of equivalence and (3) measures of internal consistency which includes split-half and Kuder-Richardson estimates. The first two methods require data from two testing sessions. It was not feasible to obtain these kinds of data under the field conditions. Therefore using the methods of internal consistency, the reliability was obtained.

In the split-half method, the test was divided into two similar sub-tests. The sum of the scores on odd items in the test were correlated with the sum of the scores on even items. The correlation between two halves, was calculated by Pearson's Product Movement method. That is, these half-test correlation co-efficients were obtained from the equated forms. The reliabilities of the full-length tests were then estimated by applying the Spearman-Brown Prophecy formula.

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The K-R method stresses the inter correlation of the items in the test and the correlation of the items with the test as a whole.

The reliability of the tests used in the pilot study was calculated on the basis of the items retained for the final study.

4.5.2 Split-Half Method

The reliability co-efficient was calculated using the following Pearson's formula for product-moment correlation :

$$r=\frac{N\Sigma FXY-(\Sigma FX)(\Sigma FY)}{\sqrt{[(N\Sigma FX^2)-(\Sigma FX)^2][N\Sigma FY^2)-(\Sigma EY)^2]}}$$

The reliability co-efficient for total length of the test was calculated using the Spearman-Brown Prophecy formula

$$r_{tt}=\frac{2r_{hh}}{1+r_{hh}}$$

where r_{tt}=reliability co-efficient of the whole test

r_{hh}=reliability co-efficient obtained between parts of divided test

(i) *Telugu est*

r=0.695 (vide Table 10)

r_{tt}=0.82

(ii) *Arithmetic Test*

r=0.6664 (vide Table 11)

r_{tt}=0.7998

(iii) *Test in Problem Areas*

r=0.6035 (vide Table 12)

r_{tt}=0.7528

4.5.3 Kuder-Richardson Method

The K-R formula-20 is applied here.

$$r_{11}=\frac{n}{(n-1)}\times\frac{\sigma^2t-\Sigma pq}{\sigma^2t}$$

where r_{11}=reliability co-efficient of the whole test

n=number of items in the test

σt=the S.D. of the test scores

p=the proportion of the group answering a test item correctly.

q=(1−p)=the proportion of the group answering a test item incorrectly.

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TABLE 10

Scattergram of Scores used in Split-half Method—Telugu Test (Pilot Study)

		'Even-items' scores (X-variable)							
		1-5	6-10	11-15	16-20	21-25	26-30	31-35	fy
'Odd-items' scores	31-35							5	5
(Y-variable)	26-30				6	18	13	4	41
	21-25				22	21	30	3	84
	16-20			14	44	22	16		96
	11-15		8	22	20	23			73
	6-10	6	11	19	18				54
	1-5	2	5	10					17
	fx	8	24	65	110	92	59	12	370

$\Sigma fy' = -51$ $\Sigma fx' = 109$

$\Sigma fy'^2 = 735$ $\Sigma fx'^2 = 669$

$\Sigma fx'y' = 458$ $N = 370$

$r = 0.695$

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TABLE 11

Scattergram of Scores used in Split-half Method—Arithmetic Test (Pilot Study)

		'Even-items' scores (X-variable)							
		1-5	6-10	11-15	16-20	21-25	26-30	31-35	fy
'Odd-items' scores (Y-variable)	31-35							3	3
	26-30				15	12	10	2	39
	21-25			15	24	18	24		81
	16-20		12	29	32	27	18		118
	11-15		23	22	22	12			79
	6-10	1	19	14	14				48
	1-5	2							2
	fx	3	54	80	107	69	52	5	370

$\Sigma fy' = -13$ $\Sigma fx' = -9$

$\Sigma fy'^2 = 553$ $\Sigma fx'^2 = 465$

$\Sigma fx'y' = 338$ $N = 370$

$r = 0.6664$

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TABLE 12

Scattergram of Scores used in Split-half Method—Problem Areas Test (Pilot Study)

		'Even-items' scores (X-variable)							
		1-5	6-10	11-15	16-20	21-25	26-30	31-35	fy
'Odd-items' scores (Y-variable)	31-35							3	3
	26-30				14		19	3	36
	21-25			6	28	37	14		85
	16-20			21	42	31	12		106
	11-15		10	28	24	21	9		92
	6-10	3	8	35					46
	1-5	2							2
	fx	5	18	90	108	89	54	6	370

$\Sigma fy' = -24$ $\Sigma fx' = 74$

$\Sigma fy'^2 = 550$ $\Sigma fx'^2 = 566$

$\Sigma fx'y' = 327$ $N = 370$

$r = 0.6035$

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(i) *Telugu Test*

$\Sigma pq = 15.137$ (vide Appendix-C)
S.D. = 16.137 (vide Table 13)
$r_{11} = 0.9186$

(ii) *Arithmetic Test*

$\Sigma pq = 15.5756$ (vide Appendix-C)
S.D. = 12.99 (vide Table 14)
$r_{11} = 0.9182$

(iii) *Test in Problem Areas*

$\Sigma pq = 16.3225$ (vide Appendix-C)
S.D. = 12.035 (vide Table 15)
$r_{11} = 0.8897$

4.5.4 Validity of Tests

Content validity indicates how adequately the content of test samples the domain about which inferences are to be made. The test items in each test were not only representative of all the content areas but also fairly adequate in terms of their size. Also, in each test the items were scrutinised, reviewed and approved for content accuracy as well as for other indicators by three experts in NFE belonging to SCERT, Hyderabad. In view of this, it may be said that the tests met content validity.

TABLE 13
Frequency Distribution of Scores—Telugu Test
(Pilot data after discarding the items)

Class Interval	Mid-points	Frequency	d	fd	fd^2
1— 8	4.5	21	—4	—84	336
9—16	12.5	34	—3	—102	306
17—24	20.5	49	—2	—98	196
25—32	28.5	58	—1	—58	58
33—40	36.5	64	0	0	0
41—48	44.5	55	1	55	55
49—56	52.5	40	2	80	160
57—64	60.5	37	3	74	222
65—72	68.5	12	4	48	192
		N=370		$\Sigma fd = -85$	$\Sigma fd^2 = 1525$

Mean = 34.392 S.D. = 16.137

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TABLE 14

Frequency Distribution of Scores—Arithmetic Test
(Pilot data after discarding the items)

Class Interval	Mid-points	Frequency	d	fd	fd^2
1— 8	4.5	10	—4	—40	160
9—16	12.5	33	—3	—39	117
17—24	20.5	49	—2	—98	196
25—32	28.5	68	—1	—68	68
33—40	36.5	80	0	0	0
41—48	44.5	63	1	63	63
49—56	52.5	41	2	82	164
57—64	60.5	20	3	60	180
65—72	68.5	6	4	24	96
		N=370		$\Sigma fd=-16$	$\Sigma fd^2=1044$

Mean=36.154 S.D.=12.99

TABLE 15

Frequency Distribution of Scores—Test in Problem Areas
(Pilot data after discarding the items)

Class Interval	Mid-points	Frequency	d	fd	fd^2
6—10	8	2	—6	—12	72
11—15	13	5	—5	—25	125
16—20	18	13	—4	—52	208
21—25	23	18	—3	—54	162
26—30	28	30	—2	—60	120
31—35	33	47	—1	—47	47
36—40	38	69	0	0	0
41—45	43	55	1	55	55
46—50	48	47	2	94	188
51—55	53	39	3	117	351
56—60	58	26	4	104	416
61—65	63	14	5	70	350
66—70	68	5	6	30	180
		N=370		$\Sigma fd=220$	$\Sigma fd^2=2274$

Mean=40.975 S.D.=12.035

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4.6 ACADEMIC ACHIEVEMENT MOTIVATION INVENTORY

The purpose of any inventory is to determine the extent of a trait. Here the investigator wished to know through the inventory whether the subjects possessed the tendency to be motivated towards academic achievement. The following types of achievement motivation inventories were found to have been used by different authors in different situations.

(1) Development of picture cues (TAT format) McClelland (1953), Murray (1938), Mehta (1969), Aaron, et al. (1969), Sutcliffe (1974).

(2) Sentence completion test—Rogers (1969), Roger and Neill (1966), Shanthamani and Hafeez (1968), Sutcliffe (1974), Singh and Kumar (1975), Sivalingam (1976).

(3) Questionnaires—Singh (1974).

(4) Statements—Roy et al. (1971), Rao (1974), Roy and Kapoor (1975).

(5) Graphic Method—Aronson (1958).

After going through the relevant literature on the construction of achievement motivation and studying different types of achievement motivation inventories it was decided to develop Academic Achievement Motivation Inventory with the statements. This decision seemed to be rational.

4.6.1 Pooling the Statements

The available achievement motivation inventories and the relevant literature were thoroughly examined to select statements. As the purpose was to develop the academic achievement motivation inventory, only such of the statements pertaining to motivation of academic achievement of the subjects were written. This instrument emphasized academic achievement but not general achievement. As a result of this, 20 pairs of statements were written. In each pair of statements, one statement was designed to have reference to academic achievement imagery and the other was designed to have

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reference to doubtful academic achievement imagery. All the statements of the first category (achievement imagery) possessed one of the following criteria enunciated by McClelland (1958, 1966) :

(1) Success in competition with a standard of excellence, (2) Unique accomplishment, (3) Long term involvement, and (4) The desire to excel regardless of social rewards. The second category of statements designated to contain doubtful achievement imagery had reference to either a common place task or solving a routine problem or a social reward. All the statements were relevant to the situations close to the subjects. While preparing the statements the age, academic level and mental ability of the subjects were kept in mind. The statements were direct, simple and unambiguous and directly related to the academic achievement.

The 20 pairs of statements were given to three members of the staff and five research scholars who had done good work on achievement motivation for their Ph. D. or M. Phil. degrees. They were requested to examine the statements with respect to their relevance to any one of the two categories— achievement imagery (AI) and doubtful achievement imagery (DAI). Of the eight members 5 had expressed that 4 pairs of statements were relating to the general achievement but not academic achievement. Therefore those 4 pairs of statements were excluded from the list, and 16 pairs of statements were retained in the list.

These 16 pairs of statements were administered on a random sample of ten V standard students of formal primary school and ten IV stage learners of NFE centres. These students understood the statements and responded to them without any difficulty. Therefore, without any modification in the statements of the inventory, pilot study was undertaken. Clear instructions were given on the top of the inventory as to what the respondents have to do.

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4.6.2 Pilot Study

The printed inventory was administered on a random sample of 185 V standard formal primary school students and 185 IV stage NFE learners. In each schools/centre the inventory was administered on a small group of 5 to 10 students at a time. The investigator read out two statements together. The students had to listen to them carefully and they had to agree with only one statement. Each student had to give a tick mark in the bracket against the statement with which he/she agreed.

Scoring

The scoring key was prepared along with the inventory. The first statements in the items with serial numbers 3, 4, 5, 7, 10, 12, 13, 16 and second ones in the items with serial numbers 1, 2, 6, 8, 9, 11, 14, 15 were given credits of one because they were academic achievement oriented. Rest of the statements were given zero score. In otherwords a score was given to a statement pertaining to achievement imagery (AI) and a zero score was given to a statement pertaining to the doubtful achievement imagery (DAI).

Item selection

Item total correlations were computed for all the items in the inventory. Items with a co-efficient correlation of 0.148 or more at 0.01 level for 368 degrees of freedom were retained in the final inventory. As seen from Table 16, the value of co-efficient correlation of each item is higher than 0.148. Therefore all the 16 items were retained in the final inventory. The final academic achievement motivation inventory is given in Appendix-A.

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TABLE 16

Item-Total Correlation Co-efficients of the Statements in the Academic Achievement Motivation Inventory (Pilot Study)

Serial number as given in the inventory	Item-Total correlation co-efficients
1	0.50*
2	0.46*
3	0.59*
4	0.57*
5	0.42*
6	0.34*
7	0.59*
8	0.75*
9	0.50*
10	0.64*
11	0.86*
12	0.44*
13	0.52*
14	0.53*
15	0.61*
16	0.52*

*Significant at 0.01 level

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4.6.3 Validity

The inventory had the construct validity. Construct validity refers to the extent to which a test reflects constructs presumed to underline the test performance and also the extent to which it is based on theories regarding these constructs. In this inventory, the items pertained to the concept of academic achievement motivation. The items framed with reference to achievement imagery contained the concepts of achievement motivation viz., success in competition with a standard of excellence, unique accomplishment, long term involvement and the desire to excel regardless of social rewards. The items framed with reference to doubtful achievement imagery included common place task or solving a routine problem or a social reward. Therefore construct validity was inbuilt in the inventory.

Internal Validity

The items that correlated significantly with the criterion ($r \geq 0.148$ at 0.01 level of probability) were alone retained in the final form. Inclusion of such items was the proof of the internal validity of the inventory.

4.6.4 Reliability

The reliability for the inventory was estimated by employing K-R formula 20. The reliability co-efficient (r) was 0.889. This value was considered to be moderately high.

4.7 CONSTRUCTION OF THE CHECK-LISTS

The third objective of the study was to find out the reasons for (1) attending the NFE centres and (2) dropping out from the NFE centres. For the identification of such reasons, two check-lists, one for learners attending the NFE centres (check-list I) and another for drop-outs (check-list II) were developed. The procedure followed for the development of check-lists is as follows.

4.7.1 Collection of Items

Relevant literature on NFE was thoroughly refered for the selection of items. Experienced teachers, supervisors and

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experts in the field of NFE were approached to list the reasons for attending to and dropping out from the NFE centres. The items in which the terminology was thought to be inadequate to convey the correct meaning were discussed and such words as would convey the appropriate meaning were used. The draft check-lists I and II at this stage were consisting of 19 and 28 items respectively.

Preliminary forms of check-lists

The preliminary form of check-lists were presented to a selected group of experienced teachers, supervisors and experts in the field of NFE. They were requested to go through the check-lists and suggest other reasons that may have to be included and also to give their general comments about the suitability of the check-lists to study the reasons for attending to and dropping out from the NFE centres. They commented that the items in the check-lists were exhaustive and pointed out 3 items in check-list I and 2 items in check-list II were redundant. Those items which were considered redundant by them were deleted. At this stage there were 16 items in the preliminary form of the check-list I and 26 items in check-list II respectively.

4.7.2 Pilot Study

A pilot study was conducted using the preliminary forms of check-lists. Check-list I was administered to 370 learners randomly selected and check-list II was administered on 60 drop-outs randomly selected. They were asked (1) to check the reasons, (2) to mark those items the meaning of which was not clear to them, and (3) to write at the end any other reason that they had but did not come under the items in the check-list. Based on the results of the pilot study 2 items were deleted from the check-list I and 4 items were deleted from the check-list II.

Final form of the check-lists

As per the experience received from the pilot study, the items were refined by going through the items which were perceived as ambiguous. Thus 14 items were included in the

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final form of the check-list I and 22 items were included in the final form of the check-list II. The items in the check-lists were then randomised. The final form of the check-lists are given in Appendix-A.

4.7.3 Validity

Content validity

The two check-lists namely (1) Learners' Reasons for Attending the NFE Centre—check-list and (2) Reasons for Dropping from NFE Centre—check-list included all possible reasons for attending to and dropping from NFE centres. All experienced teachers, supervisors and experts who had gone through the check-lists endorsed that the items listed covered all possible reasons. A few items suggested to be included were incorporated in the final form. The items which were considered to be overlapping were excluded according to their suggestions. Also the final forms were made open-ended. Subjects were asked to indicate any specific reasons which they may have but which were not already included, in the space provided at the end of the check-lists.

It was noted in the pilot study that no one had stated any other specific reasons. This was taken to indicate that the check-lists covered all the reasons. This established the content validity of the check-lists.

4.7.4 Reliability

The final forms of the check-lists were separately administered twice to 30 learners and 30 drop-outs with two weeks interval between the two administrations. The reasons checked by the subjects on the first administration and the second administration were correlated. The correlation co-efficients obtained were 0.86 and 0.84 for check-lists I and II respectively. These values were considerably high.

4.8 CONSTRUCTION OF THE QUESTIONNAIRE

The second objective of the present study was to ascertain the inputs available at the NFE centres such as physical facilities, teaching-learning materials and kind of instructors. For this purpose a Questionnaire for Instructors was used.

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4.8.1 Collection of Questions

For the preparation of the questionnaire; teachers; experts and supervisors in the field of NFE were approached to get information about the physical facilities, teaching-learning materials and kind of instructors. Other available related questionnaires were studied carefully. A number of journals, reports, dissertations and other relevant literature on NFE were referred thoroughly for the selection of meaningful items. Care was taken in the preparation of the questionnaire about the following aspects :

(1) The questionnaire was as brief as the study of the problem allowed.
(2) The items in the questionnaire were relatively free from ambiguity and other invalidating features.
(3) The directions in the questionnaire were clear, complete and acceptable.
(4) The items in the questionnaire were in good psychological order.
(5) Overlapping among the items of the questionnaire was avoided.
(6) Double-barrelled questions and double negatives were not used.
(7) Each question was limited to a single idea.
(8) As far as possible spoken language was used.
(9) Care was taken for clear printing and neat arrangement of items in the questionnaire.

The questionnaire was divided into three sub-headings namely (1) teacher's personal data, (2) physical facilities, and (3) teaching-learning materials.

(1) *Teacher's personal data*

Questions seeking information on the age, sex, occupation, other job, landholding, annual income, educational and professional qualifications, training and teaching experience of the instructors were included under the sub-heading—teacher's personal data.

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(2) *Physical facilities*

Physical facilities of the centres namely accommodation, lighting arrangements, sitting arrangements, area, drinking water facility, furniture, ringing bell, urinals, cleanliness, distance of the centre from the houses of learners etc., were included under this sub-heading.

Scoring

In order to grade the centres on the basis of the physical facilities, the physical facilities were scored as follows : (1) In the case of accommodation of the NFE centre scores 0, 1 and 2 were given to open space; instructor's house, learner's house, local leader's house, local school, temple, village choultry, panchayat office respectively. (2) Regarding the lighting arrangements the scores 1, 2 and 3 were given to kerosene lamp, petromax light, and electric light/no need of light respectively. (3) In the case of sitting arrangements the scores given were 1, 2, 3 and 4 for ground, mat/gunny bags, planks and benches respectively. (4) Area upto 100 sq.ft. which is considered very inadequate was scored 0, between 101 and 300 sq. ft. scored 1, and above 300 sq. ft. scored 2. (5) Regarding drinking water facility scores 0, 1 and 2 were given to no facility, pot water, and pump water respectively. (6) Scores 0 and 1 were given to the roof with leakage and without leakage. (7) Scores 0 and 1 were given to non-availability and availability of the ringing bell. (8) Scores 0, 1, 2 and 3 were given for the non-availability, availability of the chair, chair and table, chair, table and record box respectively. (9) Scores 0 and 1 were given to non-availability and availability of space for urinals. (10) Scores 0 and 1 were given for the building of NFE centre without windows and with windows respectively. (11) Scores 0 and 1 were given for the NFE centre's building without ventilators and with ventilators. (12) 0 score was given if the NFE centre was unclean and 1 score was given if the centre was clean. (13) Scores 0 and 1 were given to the NFE centre if it was far away and near from the houses of the learners. Thus, the maximum physical facilities score was 22.

(3) *Teaching-learning materials*

The teaching-learning materials expected to be available at

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the NFE centres were : slates, slate pencils, blackboard, chalk-peices, text-books, note books, pencils, work books, maps, charts, globe, flash cards and models. This part of the questionnaire consisted of a tabular column seeking the information (1) whether the above said teaching-learning materials were available or not (2) if they were available, whether they were adequate or inadequate and (3) whether there were improvised teaching-learning materials in the NFE centres.

Scoring

Scores 0, 1 and 2 were given to each item of the teaching-learning materials if it was not available; if it was available but inadequate; and available and adequate. The maximum score of the teaching-learning materials was 30.

The questionnaire items were submitted for criticism to the research director and teachers, supervisors and experts in the field of NFE programme. In the light of the criticism and comments only 13, 15 and 16 items were retained under the three sub-headings respectively and some of the terms which were liable to be easily misinterpreted were modified and rephrased.

The items were tried out on 15 teachers of NFE centres in Puttur block. Based on the experience gained in the tryout test slight modifications were made in the questionnaire items. At this stage there were 13, 15 and 16 items under each of the three sub-headings.

4.8.2 Pilot Study

The aim of the pilot study was to find out whether the items included in the questionnaire were relevant, easily understood and direct. The pilot study was carefully planned and conducted on 370 teachers of NFE centres selected randomly from the four districts of Rayalaseema area.

With the feedback received through the pilot study, 3 items were deleted from the questionnaire.

The final form of the questionnaire consisted of 13, 13 and 15 items under the three sub-headings (vide Appendix-A).

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4.8.3 Validity

The questionnaire was oriented towards the problem under study. It comprised of specific and relatively independent question items each dealing with a specific aspect of overall situation. So, the validity of items rather than the validity of whole questionnaire was considered. It is necessary for each questionnaire to have face validity, i.e., each question must be related to the topic under investigation. There was an adequate coverage of overall topic. The questions were clear and unambiguous. All the above measures were followed in establishing the face validity of the questionnaire. The questionnaire was prepared and administered on a sample of 20 teachers. It was found that their responses to the questionnaire actually represented their views on the subject discussed. Thus, the validity of the questionnaire was established.

4.8.4 Reliability

The question of the reliability of the questionnaire is difficult to establish with any degree of precision. The usual procedures for calculating the reliability of the tests are difficult to apply to the questionnaire.

In establishing the reliability of the questionnaire test-retest method was followed because of the independent nature of the items. Teachers from 60 NFE centres who were the subjects in the pilot study were asked to take it again (retest) after fifteen days and their answers were compared with the previous one for consistency. For the accuracy of the questionnaire responses, an oral interview was conducted and the responses to the interview was compared with that of the questionnaire responses. There was consistency. Thus, the reliability of the questionnaire was established.

4.9 CONSTRUCTION OF SCHEDULE FOR CLASS-ROOM SITUATION AND INTERVIEW SCHEDULE FOR DROP-OUTS

To find out the details of the learners attending the NFE centres a Schedule for Class-room Situation was developed (schedule I). Similarly, Interview Schedule for Drop-outs was prepared to know the personal data of the drop-outs (schedule II).

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4.9.1 Collection of Items

To prepare the Schedule for Class-room Situation and also the Interview Schedule for Drop-outs, teachers and supervisors in the field of NFE were approached to get information about the details pertaining to class-room situation and also about the drop-outs. Relevant literature on these aspects of NFE was reviewed thoroughly. Other relevant schedules were studied carefully.

Precautions taken in the preparation of the schedules

(1) Simple vocabulary was chosen.

(2) The items were clear and straight forward.

(3) Leading questions were avoided.

(4) Questions (items) within the informational scope of the respondent only were included.

(5) Items were arranged in such a way that they proceed from general to the more specific and from simple to complex.

(6) The schedules were short enough to avoid boredom.

Preliminary try-out of the schedules

The items were typed and submitted to the research director and teachers and supervisors in the field of NFE programme for criticism and suggestions. According to their suggestions only 15 and 20 items were retained in the schedule I and II respectively. Some of the terms that were stated as ambiguous and vague were modified. The items of the schedules I and II were tried out on 15 teachers and 15 drop-outs. With the experience of the try-out test 6 and 5 items were deleted from the schedules I and II respectively. Some items were modified. Finally, 9 items in schedule I and 15 items in schedule II were retained.

4.9.2 Pilot Study

Pilot study of schedule I was conducted on 370 teachers. Schedule II was administered on 60 drop-outs. The teachers

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Gandhi Memorial College Of Education Bantalab Jammu

and drop-outs were selected randomly from the four districts of the Rayalaseema area. With the experience gained through the pilot study, some items, which were said to be vague were refined.

The final forms of the schedules are given in Appendix-A.

4.9.3 Validity

Content validity

In the two schedules I and II, each question was related to the topic for which the schedule was prepared. There was an adequate coverage of the topic. Clear and unambiguous questions were included. Thus, the content validity of the schedules was established.

4.9.4 Reliability

Test-retest method was followed for estimating the reliability of the schedules. The subjects of the pilot study were requested to take the schedules again after fifteen days and their answers were compared with the previous one for consistency. An oral interview was conducted to test the answers of schedules for stability. There was consistency. Thus, the reliability of the schedules was established.

4.10 CONSTRUCTION OF ATTITUDE SCALE (ATTITUDE OF INSTRUCTORS TOWARDS NFE PROGRAMME)

The attitudes of teachers towards the NFE programme to a great extent influence the academic achievement of the learners and the success of the programme. The attitudes of teachers towards this vital programme is crucial to its progress. To measure the attitudes of the teachers towards the NFE programme, an Attitude Scale was constructed.

Among the techniques available for construction of attitude scale the Thurstone's equal appearing interval scale and the Likert's summated rating scale are frequently used. The Thurstone's technique makes use of objective judgement in the selection of items, requires a large number of judges and is

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time consuming. The Likert technique obviates these difficulties. Shukla (1972) has pointed out the advantages of the Likert scale as follows :

"The Likert's method of summated rating scale has been perceived significantly as relatively most reliable and valid, best understood and easiest to fill in."

In the present study the Likert type of scale design was chosen as it is widely used in investigations of this type.

4.10.1 Collection of Items

A large number of statements, each expressing one opinion were prepared in Telugu after careful study of relevant literature and in consultation with experts in the field. The list of statements was supplemented by informal interviews with some teachers of the NFE centres. At this stage there were 36 statements in the draft scale. For screening the statements thus collected, the following criteria suggested by Edwards (1957), Edwards and Kilpatric (1948) and Likert (1932) were applied.

(1) Statements should refer more to the present, prevailing conditions than to the past.
(2) Statements should not be factual, they should be capable of eliciting an opinion.
(3) Statements must be clear, precise and straight forward.
(4) Statements should not be liable to be interpreted in more than one way.
(5) Statements likely to be endorsed by every one or by no one must be avoided.
(6) The language of the statements should be simple, clear and direct.
(7) Sentences should not be too long.
(8) Each statement should contain only one complete thought.
(9) Statements should be preferably in simple sentences.
(10) Statements should not contain double negatives.

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(11) The statements should be so worded that they are easily understood by all the subjects.

(12) Words which are ambiguous should be avoided.

(13) Statements irrelevant to the topic under study must be avoided.

(14) Favourable and unfavourable statements must be approximately equal in number.

Each statement was carefully examined in the light of these criteria. As a result of rigorous culling, 33 statements about NFE programme were retained. The list of statements were typed out and presented to a panel of experts for methodological criticism. They were also requested (1) to classify the statements expressing favourable attitude and unfavourable attitude, (2) to delete redundant statements, (3) to point out ambiguous words or items, and (4) to suggest any modifications in the statements that they deemed to be necessary.

In the light of the criticism and comments of those experts only 28 items were retained and some of the terms were modified and rephrased.

The statements were tried out on fifteen teachers from the three NFE centres in Puttur block (Chittoor district) in respect of language, structure, meaning of words, subject familiarity etc. Slight modifications were made in the statements based on the experience gained in the try-out test.

After carefully editing the pilot study items, the scale on attitude towards NFE programme was prepared. The draft version of the attitude scale for teachers on the NFE programme consisted of 14 statements expressive of favourable attitude and 14 statements indicative of unfavourable attitude. The statements were arranged in a random sequence in the draft scale. Each item was arranged on a five point scale with the responses—strongly agree, agree, undecided, disagree and strongly disagree.

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4.10.2 Pilot Study

The attitude scale thus prepared was subjected to a pilot study with a random sample of 370 teachers in NFE centres. The sample for the pilot study was drawn from different villages in the four districts of Rayalaseema area.

The aim of the pilot study was to find out (1) whether the statements yielded satisfactory and usable data, and (2) the discriminating power of each of the items in the attitude scale.

The subjects were asked to read each of the statements carefully and to indicate (mark) their degree of agreement or disagreement by putting a tick mark against the item in the corresponding column.

Scoring of the statements

For scoring, numerical values were assigned to the five categories of responses as follows :

Statement	Strongly agree	Agree	Undecided	Disagree	Strongly disagree
Positive or favourable	5	4	3	2	1
Negative or unfavourable	1	2	3	4	5

The score for each individual on the scale was computed summing the weights of the individual item-responses. This is why this type of scale is called the 'Method of Summated Rating.' The range of the scale, under the present scoring system was 28-140.

Selection of items

For the final selection of items the critical ratio of each statement was calculated. Critical ratio is a measure of the extent to which a given statement differentiates between the high and low groups of respondents. In this study, 27 percent of the respondent groups with the highest and lowest total scores constituted the high and low groups respectively.

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As the pilot study was conducted on 370 teachers of NFE centres, a group of 100 respondents with the highest scores constituted the high group and the group of 100 respondents with the lowest total scores formed the low group. These high and low groups were selected to be the criterion groups for calculating the critical ratio for each item. Sample size in the present study being 370, frequency in high group 100 (X_H) and frequency in the low group 100 (X_L) were equal and therefore, the critical ratio was calculated by the following formula suggested by Edwards (1957).

$$t = \frac{\bar{X}_H - X_L}{\sqrt{\frac{\Sigma(X_H - \bar{X}_H)^2 + \Sigma(X_L - X_L)^2}{n(n-1)}}}$$

where $\Sigma(X_H - \bar{X}_H)^2 = \Sigma\bar{X}^2_H - \frac{(\Sigma X_H)^2}{n}$

$$\Sigma(X_L - \bar{X}_L)^2 = \Sigma X^2_L - \frac{(\Sigma X_L)^2}{n}$$

ΣX^2_H = Sum of the squares of the individual scores in the high group.

ΣX^2_L = Sum of the squares of the individual scores in the low group.

$\bar{X}_H$ = The mean score on a given statement for the high group.

$\bar{X}_L$ = The mean score on a given statement for the low group.

n = Number of respondents in each group.

Application of this formula is illustrated on the data pertaining to item No. 1 of the attitude scale.

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TABLE 17
Calculation of Critical Ratio

Response categories	Low group				High group			
	X	f	fX	fX^2	X	f	fX	fX^2
Strongly agree	5	46	230	1150	5	88	440	2200
Agree	4	47	188	752	4	9	36	144
Undecided	3	7	21	63	3	0	0	0
Disagree	2	0	0	0	2	0	0	0
Strongly disagree	1	0	0	0	1	3	3	3
Sum		100	439	1965		100	479	2347
		nL	ΣX_L	ΣX^2_L		nH	ΣX_H	ΣX^2_H

$$\bar{X}_L = \frac{439}{100} = 4.39 \qquad \bar{X}_H = \frac{479}{100} = 4.79$$

$$\Sigma(X_L - \bar{X}_L)^2 = 1965 - \frac{(439)^2}{100} = 37.79$$

$$\Sigma(X_H - \bar{X}_H)^2 = 2347 - \frac{(479)^2}{100} = 52.59$$

$$t = 4.19$$

The 't' values were similarly calculated for the rest of the items in the scale used in the pilot study. The 't' values for the individual items used in the attitude scale are given in Table 18.

As suggested by Edwards (1957) the thumb rule of rejecting items with 't' value of less than 1.75 was followed. Based on this criterion the positive item with the serial number 21 (t=1.56) in the draft scale was rejected. In order to strike a balance between positive and negative statements, 1 negative statement, the 't' value of which was comparatively lower than the remaining negative statements was also deleted. It was the item with serial number 3 (t=2.44). Finally only 26 items were retained in the attitude scale. The final form of the scale is given in Appendix-A.

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TABLE 18

't' Values and Item-Total Correlation Co-efficients of the Items in the Attitude Scale : Attitude of the Teachers Towards NFE Programme (Pilot Study)

Sl. No. of the item (+ ve or — ve item)	't' value	'r' value	Sl. No. of the item in the final scale	Remarks
1—	4.19	0.16	24	
2+	7.73	0.43	15	
3—	2.44@	0.35	—	Rejected
4—	9.03	0.19	10	
5+	6.55	0.99	19	
6+	6.01	0.51	23	
7—	3.88	0.71	26	
8—	7.15	0.91	18	
9—	6.23	0.51	20	
10+	6.91	0.48	17	
11—	9.20	0.52	6	
12—	9.66	0.64	4	
13—	4.86	0.66	22	
14+	11.72	0.69	1	
15+	7.87	0.22	13	
16+	8.24	0.48	11	
17+	9.07	0.52	5	
18+	8.72	0.68	9	
19+	10.46	0.43	3	
20—	10.30	0.55	2	
21+	1.56*	0.14	—	Rejected
22+	4.09	0.32	25	
23—	9.17	0.51	8	
24—	7.17	0.70	16	
25+	8.89	0.98	7	
26+	6.45	0.98	21	
27—	7.97	0.52	14	
28—	8.20	0.41	12	

@ This item is rejected for want of equal number of — ve items.

* This is less than 1.75.

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Gandhi Memorial College Of Education Bantalab Jammu

Item-total correlation

As suggested by Likert (1967), an objective check was then made to see whether the numerical values were properly assigned and whether the statements were differentiating. This was done by applying the item-total correlation co-efficient formula :

$$r = \frac{\Sigma XY - NM_x M_y}{\sqrt{[\Sigma X^2 - NM^2x][\Sigma Y^2 - NM^2y]}}$$

$\Sigma XY = 188727$ $N = 370$

$Mx = 4.53$ $\Sigma X^2 = 7875$

$My = 112.24$ $\Sigma Y^2 = 4711125$

$r = 0.16$

The procedure adopted in the calculation of 'r' value of the item No. 1 in the scale was followed in calculating 'r' values of the rest of the items in the attitude scale. 'r' values for all the items are given item-wise in Table 18. Positive correlation co-efficients were obtained for all items, indicating that the numerical values were properly assigned. The size of the correlation co-efficients between the items and the scale as a whole were not low.

The final attitude scale

Based on the results of the pilot study and subsequent item analysis, a final scale consisting of 13 positive items and 13 negative items was prepared. Positive and negative items were alternatively arranged. This equal number of positive and negative statements gave the advantage of minimisation of possible response sets of subjects that might be generated, if, only positive or negative statements were included in the scales.

4.10.3 Validity

The attitude scale was developed by keeping in view of their content, face and construct validity requirements.

Content Validity

The related literature was the source for the items. The instrument was subjected to the scrutiny criticism and comment of the experts in the field of NFE. The scale was modified in the light of their comments and criticism.

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Face validity

The attitude scale had face validity too. As far as possible, the scale was made palatable to the respondents. Also, when the scale was shown to those who did not have any knowledge of test construction methods, they readily perceived that the scale was designed to ascertain attitudes of NFE programme.

Item validity

Item validity emphasises the content to which an item predicts segregation of examinees into those with high verses low criterion scores. The discriminating index was prepared for all the items and those items having high discriminating power (1.75 and more) were retained in the final test.

Besides the calculation of critical ratios, the correlation co-efficients between the items and the instrument as a whole were calculated. Care was taken that no item included in the final scale had low value (vide Table 18).

4.10.4 Reliability

The reliability co-efficient of the attitude scale was computed through split-half technique. The reliability co-efficient is given below :

N=370

The reliability co-efficient of the half-test $\left(r \frac{1}{2} \frac{1}{11} \right)$	0.764 (vide Table No. 19)
The reliability co-efficient of the whole test (r_{11}) computed by Spearman-Brown prophecy formula	0.8662

As the reliability co-efficient of the scale was reasonably high, it might be concluded that the scale could satisfy the requirements of the study.

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TABLE 19

Scattergram o[illegible] used in Split-half Method—Attitude of the Teachers Towards NFE (Pilot Study)

'Odd-items' scores (Y-variable)	'Even-items' scores (X-variable) 35-39	40-44	45-49	50-54	55-59	60-64	65-69	fy
65-69					3	6	12	21
60-64				6	27	28	27	88
55-59			6	31	69	15	3	124
50-54		3	23	64	14	6		110
45-49		7	3					10
40-44	6	5	3					14
35-39				3				3
fx	6	15	35	104	113	55	42	370

$\Sigma fy' = 316$ $\Sigma fx' = 266$

$\Sigma fy'^2 = 758$ $\Sigma fx'^2 = 860$

$\Sigma x'y' = 662$ $N = 370$

$r = 0.764$

G.M. College of Education
Raipur, Bantalab
Jammu.
Acc. No. 30
Dated

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4.11 CONSTRUCTION OF THE DEVELOPMENT OF LOCALITY SCALE

The fifth objective of the study was to ascertain the factors which affect the achievement of the learners in different performance areas. Development of locality was also considered as one of the factors (independent variable). Therefore, development of locality scale was proposed to be constructed. The scale was constructed using certain facilities, amenities and establishments available within or around the locality like educational facility, health facility, post and telegraph offices, electricity, transport facility, co-operatives/banks, government agencies, proximity of the locality to city/town, weekly market, industry or factory, population, literacy rate etc.

4.11.1 Collection of Items

Available literature and scales on development of locality were studied. Other works on development of locality were referred to. Moreover practical experience helped the investigator to collect and formulate some statements related to the development of locality.

As described in the previous paragraph 20 items were collected. These statements were examined, reviewed and edited by the investigator. Ambiguous statements were dropped. Only 16 statements relevant to the development of locality were retained. These statements were given to the experts and the research director with a request to examine the appropriateness of the statements with regard to the development of locality. According to the suggestions of the experts and the research director 2 statements were deleted. The remaining 14 statements were cyclostyled and administered to 15 teachers of NFE centres selected randomly from the three blocks of Chittoor district. The respondents were required to respond to the statements according to the degree of availability of the facility in their locality.

Each statement was given two to five alternatives. From the try-out test it was clarified that the statements could be easily understood.

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4.11.2 Pilot Study

Pilot study was conducted on 370 teachers of NFE centres selected randomly from the four districts of Rayalaseema area. With the experience of the pilot study, two items were deleted. A copy of the final form of the scale is given in Appendix-A.

Scoring of the statements

The statements were scored in the following pattern : (1) In the case of educational facility scores 0, 1, 2, 3 and 4 were given to availability of none, primary school, upper primary school, high school and college respectively. (2) Regarding health facility scores 0, 1 and 2 were given to availability of none, ayurvedic or homeopathic hospital and primary health centre respectively. (3) Regarding post and telegraphic offices, scores 0, 1 and 2 were given to availability of none, of post-office and of post and telegraph office respectively. (4) Regarding electricity facility scores 0 and 1 were given to non-availability and availability respectively. (5) In the case of transport facility scores 0, 1, 2 and 3 were given to availability of none, motorable road without bus service, bus or train service and bus and train service respectively. (6) In the case of co-operatives/banks scores 0, 1, 2 and 3 were given to availability of none, of cooperatives, of banks, and of cooperatives and banks respectively. (7) In regard to government agencies scores 0, 1, 2 and 3 were given to availability of no agency, 1, 2 and 3 or more agencies respectively. (8) Proximity of the locality to city/town was scored as 0, 1 and 2 for a distance of more than 10 kms, between 5 and 10 kms and less than 5 kms respectively; town/city was scored 3. (9) Non-availability and availability of weekly market were scored 0 and 1 respectively. (10) Regarding literacy rate 0, 1 and 2 were given to below 20 percent, between 20 and 30 percent and above 30 percent respectively. (11) With regard to industry/factory in the proximity of the locality scores 0 and 1 were given to non-availability and availability respectively. (12) In the case of population, scores 0 and 1 were given to the population less than 1,000 and more than 1,000 respectively. The maximum score of the development of locality scale was 25.

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.411.3 Validity

Content validity

The statements used in the development of locality scale were related to the level of development of the locality. The items were submitted to the research director and to the experts for criticism and suggestions. There was cent percent unanimity in the ratings of the experts. Also a sufficient number of items were included in the scale. This is the proof of the content validity of the development of locality scale.

4.11.4 Reliability

The final form of the development of locality scale was administered twice to a set of 25 NFE instructors with two weeks interval between the two administrations (test-retest method). The scores obtained by the teachers in the first administration and second administration were correlated. The correlation co-efficient thus obtained was 0.88. This was considerably a high value.

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CHAPTER V

Methodology of Investigation

In this chapter the details about the locale of the study, sampling design, data collection, design of the study, variables studied and the statistical techniques used in analysing and interpreting the data are described.

5.1 LOCALE OF THE STUDY

The locale of the study was the Rayalaseema region in the state of Andhra Pradesh. The state has three distinct regions : Andhra, Rayalaseema and Telangana. Andhra region is the coastal region and it is more developed educationally and economically than the other two regions of the state. The Telangana is the most backward region educationally and economically. The Rayalaseema region stands in between the two regions having an average level of education and economy. As Rayalaseema region is neither well developed like Andhra region nor ill developed like Telangana region in education, a study of the functioning of NFE programme in this region would yield more fruitful and practicable results. Therefore, Rayalaseema region was selected as the locale of the study. Rayalaseema region consists of four districts viz., Anantapur, Chittoor, Cuddapah and Kurnool. In all these four districts the NFE programme has been in operation since 1979-80. Therefore, every district had experience in conducting NFE programme. Hence all the districts were included in the present study.

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5.2 SAMPLING DESIGN

5.2.1 Selection of Districts and Blocks

As all the four districts of the region had sufficient experience in organising NFE programme since 1979-80, all the four districts were selected for the study.

The criteria for selecting the blocks in the districts were as follows :

(1) The block must be conducting the NFE programme since 1979-80.

(2) At least half of the NFE centres in the block should have IV stage learners.

(3) The blocks in each district which had satisfied these two criteria were listed in the alphabetic order and two of the blocks were randomly selected from among them.

5.2.2 Selection of the NFE Centres

The criteria for selecting the centres were as follows :

(1) The NFE centres must have IV stage learners.

(2) The IV stage learners in the centre must not be less than 8. Such of the NFE centres which could satisfy these two criteria were listed in the alphabetic order in each block selected. 10 centres from the list were randomly drawn.

5.2.3 Selection of the NFE Learners

Five learners were randomly drawn from the IV stage NFE learners available in each randomly drawn centre.

The total sample of NFE learners thus selected were 400. The composition of the sample of NFE learners is presented in Table 20.

It may be noted that only in the case of the analysis of composition of NFE learners, all the learners in all the stages of 80 selected NFE centres were included.

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TABLE 20
Composition of the Sample of NFE Learners
(Final Study)

Name of the District	Names of the blocks covered in the district	NFE centres selected	Learners selected from each centre	No. of learners selected from each block	No. of learners selected from each district
Anantapur	Hindupur	10	5	50	100
	Kuderu	10	5	50	
Chittoor	Karvetinagar	10	5	50	100
	Punganur	10	5	50	
Cuddapah	Cuddapah	10	5	50	100
	Proddatur	10	5	50	
Kurnool	Dhone	10	5	50	100
	Veldurthi	10	5	50	
				Total	400

5.2.4 Selection of the Formal Primary School Pupils

Similar procedure as in the case of the selection of sample of NFE learners was followed for the selection of the sample from formal primary school pupils with the only difference that the number of primary schools included in the study in each block were 5. The criteria followed for the selection of formal primary school pupils were as follows :

(1) The village in which the primary school was situated must have a NFE centre and the NFE centre must have been included in the sample.

(2) The primary school must have not less than 20 V standard pupils. The composition of the sample of primary school pupils is given in Table 21.

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TABLE 21
Composition of the Sample of Formal Primary School Pupils (Final Study)

Name of District	Names of the blocks covered in the district	Primary schools selected	Pupils selected from each school	No. of pupils selected from each block	No. of pupils selected from each district
Anantapur	Hindupur	5	5	25	50
	Kuderu	5	5	25	
Chittoor	Karvetinagar	5	5	25	50
	Punganur	5	5	25	
Cuddapah	Cuddapah	5	5	25	50
	Proddatur	5	5	25	
Kurnool	Dhone	5	5	25	50
	Veldurthi	5	5	25	
				Total	200

5.2.5 Selection of the Drop-outs

Two drop-outs were randomly selected from each NFE centre included in the study. Thus the total sample of drop-outs from all districts were 160. The composition of the sample of drop-outs is shown in Table 22.

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TABLE 22

Composition of the Sample of Drop-outs from NFE Centres (Final Study)

Name of the District	Names of the blocks covered in the district	NFE centres selected	Drop-outs selected from each centre	No. of drop-outs selected from each block	No. of drop-outs selected from each district
Anantapur	Hindupur	10	2	20	40
	Kuderu	10	2	20	
Chittoor	Karvetinagar	10	2	20	40
	Punganur	10	2	20	
Cuddapah	Cuddapah	10	2	20	40
	Proddatur	10	2	20	
Kurnool	Dhone	10	2	20	40
	Veldurthi	10	2	20	
				Total	160

5.2.6 Selection of the Instructors

All the instructors of the NFE centres selected for the study constitute the sample of instructors. As the total number of the NFE centres selected in all the four districts were 80, the sample of instructors included in the study was also 80. The composition of the sample of NFE instructors is given in Table 23.

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TABLE 23

Composition of the Sample of NFE Instructors (Final Study)

Name of the District	Names of the blocks covered in the district	NFE centres selected	Instructors selected from each centre	No. of instructors selected from each block	No. of instructors selected from each district
Anantapur	Hindupur	10	1	10	20
	Kuderu	10	1	10	
Chittoor	Karvetinagar	10	1	10	20
	Punganur	10	1	10	
Cuddapah	Cuddapah	10	1	10	20
	Proddatur	10	1	10	
Kurnoot	Dhone	10	1	10	20
	Veldurthi	10	1	10	
				Total	80

5.3 DATA COLLECTION

5.3.1 Preliminary Steps Taken to Facilitate Collection of Data

Permission was obtained from the District Educational Officers of the four districts who were in overall incharge of the formal and NFE programmes in the districts, to conduct the study and collect data from the concerned subjects. Necessary information about the NFE programme was provided by them. The co-operation of the District Educational Officers, Deputy District Educational Officers, Supervisors and Instructors was solicited to identify the NFE centres/primary schools and in designing the field work. The supervisors at the block level were of much help to chalk out a definite plan for the collection of data.

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5.3.2 Data for the Study

Before administering the research tools to each respondent, an effort was made to establish rapport with him or her. Care was taken to see that no one in the sample was absent and to make the subject respond to the tests and other tools without any hesitation on their part. The purpose of the administration of the tools was explained to the respondents well in advance. While collecting the data every precaution was taken to ensure normal conditions.

The tools were administered on the respondents in each centre/school on one day. A small group of 5 respondents was gathered. The directions were read out to the respondents before they answered the items of the particular tool.

5.3.3 Data from the NFE Learners

The data pertaining to the NFE learners was gathered in two sittings with an interval of 15-20 minutes during 6-9.15 p.m. when they usually meet in the centres. Altogether the time required for the two sittings was two hours of normal working of the centre and another extra hour. In the first sitting the investigator and her assistant gathered the data required in the personal data sheet (about 10 minutes) and later they administered the tools—Learners' Reasons for Attending the NFE Centre—check-list, (about 20 minutes), Academic Achievement Motivation Inventory (about 20 minutes) and Telugu test (about 40 minutes) on the respondents for the data. In the second sitting after a gap of 15-20 minutes, the two achievement tests—Arithmetic test and test in Problems Areas were administered on the same respondents. Each test required about 40 minutes. The tools were prepared in such a way that sufficient space was provided against/under each item for writing the responses. Hence no separate answer sheets were required for writing the answers.

5.3.4 Data from the Formal Primary School Pupils

Data had to be collected during the school working hours from formal V standard pupils by administering the achievement tests—Telugu test, Arithmetic test and test in Problem Areas. Two hours of time was taken for the administration of

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these tests for a small group of five V standard pupils in formal primary schools.

5.3.5 Data from the Drop-outs

The data was gathered from two drop-outs from each NFE centre usually in the morning, sometimes at the noon. The tools administered on them were—Interview Schedule for Drop-outs (about 30 minutes) and Reasons for Dropping from NFE Centre—check-list (about 30 minutes).

5.3.6 Data from the Instructors

The Questionnaire (about 20 minutes), Schedule for Class-room Situation (about 30 minutes), Attitude of Teachers Towards NFE (about 20 minutes) and Development of Locality Scale (about 20 minutes) were administered to the instructors of NFE centres during the working hours of the NFE centres. The help of one of the assistants of the investigator was rendered to the instructor in filling the tools.

The testing and data collection were done by the researcher and her two research assistants from January 1985 to March 1985. The data were collected from 400 IV stage NFE learners, 200 formal V standard pupils, 160 drop-outs from NFE centres and 80 NFE instructors from four districts of Rayalaseema as per the sample design.

5.4 SCORING

The procedure followed in scoring various research tools in the pilot study was followed in the final study also. There was no need of any change in the scoring procedure of the final study from that of the scoring procedures followed in the pilot study.

5.5 DESIGN OF THE STUDY

The study was designed to examine the functioning of NFE programme in terms of composition of NFE learners, inputs available in the NFE centres, and the learning outcomes of the NFE learners. In other words the investigation aims at evaluating these aspects under the existing conditions. As such this study falls under the survey type of research.

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The study was also designed to examine the influence of some selected variables relating to learners, instructors and centres on the academic performance of the NFE learners. The variables pertaining to the academic performance of the NFE learners were treated as dependent, while the variables pertaining to the learners, instructors and centres were treated as independent.

5.6 VARIABLES STUDIED

5.6.1 Dependent Category

Variables pertaining to the academic performance of the formal and NFE learners were considered to be dependent variables. The performance variables were considered individually as well as the combination of all the dependent variables as shown below :

(1) Achievement in Telugu test,
(2) Achievement in Arithmetic test,
(3) Achievement in Problem Areas test, and
(4) Total Achievement (1+2+3).

5.6.2 Independent Category

(*A*) *Variables pertaining to the learner*

Sex : Sex has proved to be a factor in many types of learning. The results of the research studies conducted to find the relationship between the sex and academic achievement indicated little relation to significant relation. Though there were studies in the field of formal education highlighting the differences in academic achievement of boys and girls, no such studies were conducted in the field of NFE. Therefore, sex was included as an independent variable to study whether it has any influence on the academic achievement of the NFE learners.

Age: Age is considered as a social factor (Roy and Kapoor, 1975). It is also considered as a bio-social factor. It is frequently classified under demographic factors. In a rural setting chronological age is considered in many social and educational situations. When academic achievement of the

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same age students (usually same standard) is considered, age can not be a variable. But in practice, though not often, we do come across the age difference among the students of the same standared in the formal primary schools also. In the NFE programme, the formal school drop-outs and non-starters of the age group 9-14 years are eligible to become the students. The variation of the age of the learners ranges from 9 to 14 years. That is, there may be a difference of 5 years of age among the NFE learners. Therefore, age was included as an independent variable to find out whether it would influence the academic achievement of the NFE learners.

Caste : Caste is one of the important sociological factor. It plays a major role in day-to-day life especially in the rural areas. It is an important factor that pervades all fields of social action. In the words of Sen and Roy (1966) upper castes still dominate the villages in India. Caste of the participants was included in this study to see whether it has any influence on the academic performance of the NFE learners.

Occupation of parent : An important indicator of the prestige and income for the family is parents' occupation. A number of investigations support the fact that the parents' occupation has a bearing directly or indirectly on the academic achievement of their children. Therefore, parents' occupation is not only considered as a social and economic variable but also as a predictor of academic performance of the children. This kind of relationship was established with the formal school children. To know whether such relationship exists even with NFE learners, this variable was included in the study.

Size of land holding : In developing countries like India where the economy is basically agricultural, land is greatly valued by the people. The extent of land possessed by a persons contributes tremendously to enhance his social status and more particularly his economic status. Although it is true that such a situation is found both in the urban and rural areas it is quite conspicuous in the case of the later than in the former. It is also said that one's extent of ownership of land is an

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important predictor of his socioeconomic status. Therefore, it was felt necessary to study whether there was any influence of the size of land holding of the parent on the academic achievement of the NFE learners.

Development of the locality :

The development of a locality is based on the facilities, amenities and establishments available within or around that locality. Higher level of development of locality indicates more number of facilities or amenities available to its people. In other words lower level of development of locality provides less number of facilities or amenities to its residents. The general assumption is that the learners from the well developed locality are better than the learners from ill-developed locality in their academic performance. As such, to know how the level of development of the locality is influencing the performance of the learners, this independent variable was included in the study.

Income of parent : Income is a prominent economic factor whcih is extensively studied by different investigators. Income is related to occupation and in turn occupation is related to education. The relationship of income with many social factors has also been established by many studies. A major source of income in many families is father's income. Fathers' income is presumed to be related to the academic achievement of their children. The purpose of including parents' income was to examine its influence on the academic performance of the NFE learners.

Achievement motivation : Achievement motivation has been one of the most interesting variables in the whole gamut of human motivation variables. Achievement motivation is defined as "success in competition with standard of excellence" (McClelland et al., 1958). It is also defined as "desire to excel regardless of social rewards" (McClelland, 1966).

Many studies pertaining to school and college samples including the studies conducted by McClelland (1953) domonstrated a positive relationship between academic achievement

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and achievement motivation. On the contrary, some studies provided evidence in the opposite direction. Observing these divergent trends, Mehta (1969) pointed "emperical evidence on the relationship of achievement motivation and academic performance has been inadequate and erratic." If it is the case with the studies pertaining to schools and colleges, studies examining the influence of achievement motivation on the academic achievement of NFE learners are not so far conducted. Hence this variable was included as an independent variable in this study.

Drop-out/non-starter (experience of prior schooling) :

The NFE centers are mainly meant for the education of drop-outs and non-starters of the age group 6-14 years. Some of the children who were enrolled in formal primary schools and attended for some time (from a few days to 3-4 years) dropped out without completing the V standard. These drop-outs might possess some knowledge of literacy or they might have lapsed into complete illiteracy. However, these drop-outs might be better in learning the literacy skills easily and quickly compared to the non-starters who had not entered the portals of formal primary schools. To study whether there exists any difference in the academic performance between the drop-outs and non-starters this variable was included in the study.

(B) **Variable Relation to the Insrructor**

Professional qualifications

Any profession requires certain skills which are essential for performing the professional work efficiently. Teaching profession also requires certain skills, which are usually provided in the training courses like higher grade, secondary grade, B.Ed. and M.Ed. The teachers with the professional qualifications are considered better than the teachers without professional qualifications in making the students learn better. To study whether the professional qualifications of the teachers effect in any way the learning of the children, this factor was included in the study.

Experience

As the experience i.e., length of service of the instructor

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increases, he is bound to learn many things which are of much importance in dealing with the NFE. The way in which a well experienced instructor tackles the problems in NFE centres is different from that of less experienced instructor. Less experienced instructor is likely to fail in situations in which more experienced instructor is likely to succeed. Hence this maxim "experience makes man perfect" holds good. So the variable experience (length of service) was included as an independent variable in this study.

Attitude of teachers towards NFE

Attitude denotes the inner feeling of a person. In other words attitude is personal disposition which impels individual to react to some object or situation. Attitude is probably the most important element of human behaviour. It is the attitude of the instructor which will determine the ultimate success or failure of NFE programme, for no programme can succeed without the favourable attitude of the instructors towards that programme.

It was hypothesised that attitude of the teachers towards NEE programme would in some way or the other influence the academic performance of the NEE learners. Therefore this independent variable was included in the study.

(C) Variables Pertaining to The NFE Centre

Physical facilities

NFE centre can not function without certain physical facilities. If minimum essential physical facilities are not available in the NFE centre it is very difficult to create a congenial learning atmosphere. With good physical facilities NFE centre not only attracts the learners, retains the learners and provides suitable situation for the learning to take place better. As such to know how far the physical facilities available in the centre are associated with the academic performance, this variable was included in the study.

Teaching-learning materials

Teaching-learning materials form the basic aids of both the instructor and the NFE learner. A NFE centre that possesses

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adequate teaching-learning materials may be considered to be well equipped to run the programme. One of the main factors considered to affect the learning outcomes namely performance in Telugu, Arithmetic and Problem Areas is teaching-learning materials available at the centre. In order to find out whether the teaching-learning materials affect the learning outcomes or not, this factor was included in the study.

5 7 STATISTICAL TECHNIQUES EMPLOYED IN THE ANALYSIS OF DATA

The following Statistical Techniques were used in the development of tools of reasearch and in the analysis of data.

(*1*) *Measures of Central Tendency*—Mean, Median and Mode;

(*2*) *Measures of variability*—Quartile Deviation and Standard Deviation;

(*3*) *Measurement of Divergence from Normality*—Skewness and Kurtosis;

(*4*) *Correlation Co-efficients*—Product Movement Correlation Co-efficient, Rank Correlation, Kendall's Co-efficient of Concordance 'W', Spearman—Brown Prophecy Formula and Kuder—Richardson Formula 20;

(*5*) *Regression Analysis*—Step-wise Multiple Regression Analysis;

(*6*) *Tests of Significance*—'t' test and Analysis of Variance; and

(*7*) *Non-parametric Test*—Chi-square Test.

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CHAPTER VI

Presentation and Analysis of Data

Chapter VI consists of six sections. Section I analyses the composition of NFE learners and instructors ; physical facilities and teaching-learning materials available in NFE Centres. Section II deals with the analysis of difference in the inputs—physical facilities, teaching-learning materials and kind of instructors. Reasons for attending the NFE centres and the reasons for dropping out from NFE centres are analysed in section III. Learning out comes of formal and non-formal students along with characteristics of score distribution are dealt with in section IV. Section V deals with the analysis of influence of independent variables on the academic achievement and prediction of the academic achievement and the last section gives a comparison of achievement between formal and non-formal learners.

SECTION I

6.1 STATUS OF NFE CENTRES

This section deals with the present position of NFE centres in terms of the composition of learners, instructors and availability of physical facilities and teaching-learning materials. The composition of learners was described with reference to their sex, age, caste, parents' occupation, parents' size of land holding and development of locality. The composition of the instructors was described with reference to their sex, age, caste, occupation, educational qualifications and teaching experience. The composition of NFE centres were also described in terms of availability of physical facilities and teaching-learning materials. Thus, this section provides a general picture of the composition of the learners, instructors and NFE centres. The

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observations were made on the basis of a total population of 2,456 learners and 80 instructors belonging to 80 NFE centres selected randomly in the four districts of Rayalaseema.

6.1.1 Composition of NFE Learners

Sex

TABLE 24
Sex-wise Distribution of NFE Learners

Sex	No. of learners	Percentage
Boys	1,474	60.02
Girls	982	39.98
Total	2,456	100.00

As observed from Table 24, the total number of boys and girls in 80 NFE centres randomly selected from four districts of Rayalaseema area were 2,456. Majority (60.02%) of the NFE learners consisted of boys. Only 39.98 percent of girls were found in NFE centres. An interesting finding regarding the sex composition of the NFE centres was that majority of the learners were boys. The boys and girls were in the ratio of 3 : 2. It is a fact that there were more number of drop-outs and non-starters in the case of girls than boys. Therefore, we expect more number of girls in the NFE centres than boys. Contrary to the expectation, we found less number of girls than boys in NFE centres. Whatever might be the reason, it may be concluded that the NFE centres could not attract the girls as expected of them.

Age

TABLE 25
Age-wise Distribution of NFE Learners

Age in years	No. of learners	Percentage
9	264	10.75
10	370	15.07
11	410	16.69
12	412	16.78
13	493	20.07
14	507	20.64
Total	2,456	100.00

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The NFE programme is meant for the drop-outs and non-starters in the age group 6-14 years. Looking at the data given in Table 25, we find that the age qualification adhered to was 9-14 years. As the policy of the Government was to implement the programme for 9-14 years age group, we did not come across the children between the age group 6-8 in NFE centres. The age-wise percentages of the enrolment indicated that learners with 13 and 14 years constituted 20.07 percent and 20.64 percent of enrolment ; learners with 11 and 12 years constituted 16.69 percent and 16.78 percent of enrolment. The trend of the enrolment was, higher the age of the learners higher was the percentage of enrolment. In otherwords, the young children with 9 and 10 years constituted poor percent of enrolment. The Government has already neglected the interests of 6-8 years of children by making the NFE centres open for 9-14 years age group alone. The instructors in the centres must make necessary efforts to attract the age group 9-10 years on par with the other age group 11-14 years.

Caste

TABLE 26

Caste-wise Distribution of the NFE Learners

Caste	No. of learners	Percentage
Scheduled Castes and Scheduled Tribes	492	20.03
Backward Castes	1,008	41.04
Other Castes	956	38.93
Total	2,456	100.00

Regarding the caste composition of the NFE learners, we found 41.04 percent of learners were belonging to backward castes, 38.93 percent of learners were belonging to other castes and 20.03 percent of learners were belonging to scheduled castes and scheduled tribes. The representation of the SC/ST and BC learners in NFE centres was considered adequate because their percentages of the total population were maintained in NFE centres. It was encouraging to note that the socially deprived castes and backward castes had been properly making use of the benefit of NFE extended by the Government.

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Occupation of parent

TABLE 27

Distribution of NFE Learners on the Basis of Parents' Occupation

Occupation of parents	No. of learners	Percentage
Agriculturists	1,123	45.72
Labourers	1,070	43.57
Caste profession and others	263	10.71
Total	2,456	100.00

As observed from Table 27, parents of the largest single group of learners were agriculturists (45.72%). The next large occupational group was labourers (43.57%). Caste profession and others constituted 10.71 percent of the composition of NFE learners.

Size of land holding of parent

TABLE 28

Distribution of NFE Learners on the Basis of Size of Land Holding of Parents

Size of land holding of parents	No. of learners	Percentage
Landless	1,126	45.85
Upto 5 acres	800	32.57
More than 5 acres	530	21.58
Total	2,456	100.00

Table 28 reveals that the parents of 45.85 percent of the NFE learners were landless poor. The parents of one-third of NFE learners (32.57%) were having 5 acres and less land. Approximately one-fourth of the parents of NFE learners (21.58%) were having more than 5 acres of land.

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Thus, the composition of NFE learners by the land holding pattern of parents indicated that there were more number of learners from landless poor.

Development of locality

TABLE 29

NFE Learners by the Development of Locality Score

Development of locality score	No. of learners	Percentage
4-5	515	20.97
6-7	590	24.03
8-9	443	18.24
10-11	403	16.40
12-13	268	10.91
14-15	232	9.45
Total	2,456	100.00

NFE programme has been launched as a developmental programme both for the individuals and community. It was therefore, important to know who were enrolled in them. Were the people who were backward benefitting from the programme ?

As observed from Table 29, the majority of the learners (45%) who fell in the lower part of the development of locality scale (4-7 score) were there in the programme. 34.64 percent of NFE learners were from the localities which had a medium score (8-11). Only 20.36 percent of NFE learners were from the localities of higher development (12-15 score). The programme could attract more number of learners from less developed areas. This is an encouraging feature.

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6.1.2 Composition of Instructors

Sex

TABLE 30

Sex-wise Distribution of the Instructors

Sex	No. of instructors	Percentage
Male	62	77.5
Female	18	22.5
	Total 80	100.0

The instructors is the key person of the NFE centre. The functioning of the NFE centre is very much dependent on the instructor. A little less than one-fourth (22.5%) of the instructors were women. The number of women instructors was small when compared to male instructors. When we refer to our data on the sex composition of the NFE learners, we find boys and girls were in the ratio of 60 : 40. At least that much proportion was not maintained by the male and female instructors. It may be concluded that the women instructors are far less in their number than the male instructors.

Age

TABLE 31

Age-wise Distribution of Instructors

Age group (years)	No. of instructors	Percentage
20 and below	15	18.75
21-30	32	40.00
31-40	21	26.25
41-50	12	15.00
	Total 80	100.00

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The instructors largely belonged to the younger age group. As many as 58.75 percent of them were below 30 years. Another 26.25 percent belonged to the age group of 31-40. Only 15 percent of them were of the age group of 41-50 years.

Caste

TABLE 32

Caste-wise Distribution of Instructors

Caste	No. of instructors	Percentage
Scheduled caste and scheduled tribes	7	8.75
Backward castes	37	46.25
Other castes	36	45.00
Total	80	100.00

Majority of the instructors (46.25%) belonged to the backward castes. Approximately equal number of instructors were from other castes (45.00%). Just 8.75 percent of them were from the SCs and STs. It may be said that the instructors from SCs and STs formed a meagre number.

Occupation

TABLE 33

Occupation-wise Distribution of NFE instructors

Occupation	No. of instructors	Percentage
Agriculturists	45	56.25
Teachers	27	33.75
Caste profession	8	10.00
Total	80	100.00

The occupation of 56.25 percent of the instructors was farming. Teachers comprising 33.75 percent constituted the second largest group. There were 10 percent of instructors from caste profession and none from business.

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Educational qualification

TABLE 34

Distribution of Instructors Based on their General and Professional Qualifications

Qualifications	No. of instructors	Percentage
1. *General*		
Below S.S.C.	—	—
S S.C.	54	67.50
Intermediate/P.U.C.	20	25.00
Graduate/Pandit	6	7.50
Post-graduate	—	—
Total	80	100.00
2. *Professional*		
No professional qualification	53	66.25
Higher grade	9	11.25
Secondary grade	16	20.00
B. Ed.	2	2.50
M. Ed.	—	—
Total	80	100.00

The instructors of the NFE centres must be educated at least to the level required for attaining, retaining and imparting higher literacy. We should expect the NFE instructor to be at least S.S.C. passed. The data on the general educational qualifications and professional qualifications of the instructors given in Table 34, show that 67.50 percent of the instructors (the single largest group) were S.S.C. holders, 25 percent of them were intermediate and 7.5 percent of them were graduates.

Two-thirds of the instructors were not possessing any professional qualification. 11.25 percent and 20 percent of them were higher grades and secondary grades respectively. 2.5 percent of them were having Bachelor of Education degree. None was found with a basic M.A. degree or with post-graduate teaching degree.

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Teaching experience

TABLE 35

Teaching Experience of NFE Instructors

Educational institution in which worked	Experience in years Upto 3 years	More then 3 years	Percentage
Pre school	—	—	—
Primary school	7	6	16.25
Upper primary school	2	3	6.25
Secondary school	1	—	1.25
College	—	—	—
Agriculture/technical institute	—	—	—
Adult education programme	4	6	12.50
NEF programme	16	35	63.75
Total	30	50	100.00

Majority of the instructors (63.75%) had no earlier teaching experience of any kind except in the NFE programme. Such instructors with teaching experience had their experience in primary school (16.25%), in adult education (12.50%) and in upper primary school (6.25%). In general it may be said that about two-thirds of the instructors did not have any earlier teaching experience.

6 1.3 Availability of Physical Facilities

Place, lighting arrangements and seating arrangements are the three important physical facilities required at the NFE centres.

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Place of class

TABLE 36

Place where NFE Classes were Held

Place where classes were held	No. of centres	Percentage
Open space	—	—
Instructor's house	10	12.50
Learner's house	2	2.50
Local Leader's house	5	6.25
Primary school	49	61.25
Temple	4	5.00
Panchayat premises	5	6.25
Any other place	5	6.25
Total	80	100.0

An important infrastructure for the NFE is a suitable place. The NFE centres under study were run in various places as shown in Table 36. The primary school stood out as most prominent place for NFE centre. 61.25 percent of the NFE centres were run is primary schools and 12.5 percent in instructor's house. 6.25 percent of centres were run in each of the places namely local leader's house, panchayat premises and any other place. 5% of the centres were run in temples.

Lighting arrangement

TABLE 37

Lighting Arrangements in the NEF Centres

Lighting arrangement	No. of centres	Percentage
No needs (Illumination)	—	—
Kerosene light	38	47.50
Petromax light	—	—
Electric light	42	52.50
Total	80	100.00

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47.5% of NFE centres had kerosene lamps. 52.5 percent of centres had electric lights. No centre was making use of the petromax light.

As almost all the NFE centres were holding their classes in the evening, lighting was an important physical facility. The kerosene lamps do not always give adequate light. If one were to consider kerosene lamp as inadequate, then nearly half of NFE centres did not have adequate lighting.

Seating arrangement

TABLE 38

Seating Arrangement in the NFE Centres

Type of seating arrangement	No. of centres	Percentage
Ground	61	76 25
Mat	12	15.00
Planks	5	6.25
Benches	2	2.50
Total	80	100.00

In more than three fourths of the centres (76.25%), the learners sat on the floor. 15 percent and 6.25 percent of the centres were able to provide the learners with mats and planks for sitting. Only a meagre 2.5 percent of the NFE centres had benches for sitting.

Area of centres

TABLE 39

Area of the NFE Centres

Area of square feet	No. of centres	Percentage
Upto 100	27	33.75
101 to 300	48	60.00
Above 300	5	6.25
Total	80	100.00

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A few of the NFE centres (6.25%) had large areas for conducting the classes (more than 300 sq. ft.). 60 percent of the centres had moderately adequate area (101 to 300 sq. ft.) for conducting the classes. About one-third of the NFE centres (33.75%) were having small area of class rooms.

Other physical facilities

TABLE 40
Other Physical Facilities in the NFE Centres

Name of the physical facility	No. of centres having the facility	Percentage
Drinking water	60	75.00
Roof of the building without leakage	62	77.50
Ringing bell	50	62.50
Furniture		
(1) Chair	52	65.00
(2) Table	38	47.50
(3) Record box	8	10.00
Place for urinals	52	65.00
Windows	52	65 00
Ventilators	18	22.50
Cleanliness	76	95.00
Location of the centre	79	98.75

75 percent of the centres had the facility of drinking water either pot water or tap. It also indicated that 25 percent of the NFE centres did not have the minimum facility like drinking water. 77.5 percent of school buildings did not leak when it was raining. 22.5 percent of buildings of the centres had the dandger of leaking when it rained. 62.5 percent of centres had the ringing bell. 37.5 percent of centres had no ringing bell. Regarding furniture, only 65 percent, 47 percent and 10 percent of the centres had chair, table and record box respectively. Only 65 percent of centres had the open space for the children to go to urinals. Only 65 percent and 22.5 percent of NFE centres had the windows and ventilators respectively. 95 percent of the centres were said to have

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been maintaining cleanliness. Almost all the centres in the sample except one were near to the house of the learners.

6.1.4 Availability of Teaching-learning Materials

TABLE 41

Availability of Teaching-learning Materials in NFE Centres

Sl. No.	Name of the Teaching-learning materials	Not available		Available			
				Adequately		Inadequately	
		No. of centres	Percentage	No. of centres	Percentage	No. of centres	Percentage
1.	Slates	—	—	78	97.5	2	2·50
2.	Slate pencils	—	—	74	92.5	6	7.50
3.	Black boards	—	—	80	100.0	—	—
4.	Chalk pieces	—	—	76	95.0	4	5.00
5.	Telugu text-books	—	—	80	100.0	—	—
6.	Arithmetic text-books	—	—	80	100.0	—	—
7.	Problem Areas text-books	—	—	80	100.0	—	—
8.	Note books	—	—	64	80.0	16	20.00
9.	Pencils	—	—	63	78.75	17	21.25
10.	Work books	80	100	—	—	—	—
11.	Maps	80	100	—	—	—	—
12.	Charts	80	100	—	—	—	—
13.	Globe	80	100	—	—	—	—
14.	Flash cards	80	100	—	—	—	—
15.	Playing materials	80	100	—	—	—	—

Out of 15 items listed under teaching-learning materials —the workbooks, maps, charts, globe, flash cards and playing materials were not supplied to any NFE centre. Therefore, they were not available in all the NFE centres. The NFE centres must posses these materials. It was unfortunate that the Government had not taken a decision to make these mater-

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ials available in the centres. The textbooks—telugu, arithmetic and problem areas were available adequately in all the centres. The roll up blackboards were adequately available in all the centres. A complaint by the instructors against the blackboards was that they could not be used for writing. This was mainly due to their poor quality. The slates, slate pencils and chalk-pieces were adequately available in 97.5 percent, 92.5 percent and 95 percent of NFE centres respectively. The slates must be supplied in excess so as to meet the contingency of their breaking or loss. Only 80 percent and 78.75 percent of NFE centres were having note books and pencils adequately. In order to develop the writing skill among the NFE learners all the centres must be adequately supplied with note books and pencils.

It was found that none of the NFE instructors had taken any initiative for improvised teaching aids in their centres. They entirely depended on the teaching-learning materials to be supplied by the Government. Instead of completely depending on the teaching-learning materials from the external agency like the Government, it is better if some of the creative teachers takes steps for the preparation of improvised teaching-learning materials which do not cost much.

SECTION II

6.2 DIFFERENCE IN THE INPUTS AT NFE CENTRES

This section describes the difference of inputs available at the NFE centres of four districts. The inputs included were (1) physical facilities (2) teaching-learning materials and (3) kind of instructors in terms of their professional qualifications and teaching experience. The attitude of instructors towards NFE was also explained.

6 2.1 Physical Facilities

The information about the availability of physical facilities was obtained from 80 NFE centres in all the four districts through the questionnaire seeking information on physical facilities at the NFE centres. The information was sought for the availability of 13 items of physical facilities (vide questionnaire for instructor).

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Scoring of physical facilities

In order to classify the NFE centres on the basis of physical facilities, the physical facilities were scored as described in the development of this questionnaire (Chapter IV, Section 8). The maximum physical facilities score was 22. In other words, a NFE centre with the availability of all the good physical facilities enumerated in the questionnaire would get a score of 22. The physical facilities scores obtained by the sample of 80 NFE centres under study in the four districts is given in Table 42.

TABLE 42

Physical Facilities Scores of NFE Centres

Limits	Mid points	f	d	fd	fd^2
3.5- 5.5	4.5	4	—3	—12	36
5.5- 7.5	6.5	10	—2	—20	40
7.5- 9.5	8.5	30	—1	—30	30
9.5-11.5	10.5	12	0	0	0
11.5-13.5	12.5	18	1	18	18
13.5-15.5	14.5	4	2	8	16
15.5-17.5	16.5	2	3	6	18
	Mean=9.75			S.D.=2.71	

Table 42 reveals that out of 80 NFE centres no centre had obtained the maximum physical facilities score. Only 2 NFE centres could obtain the physical facilities score of 16-17. 44 NFE centres out of 80 were having physical facilities score of less than 10. This indicated that the centres had poor physical facilities . It is unfortunate that 4 centres had a minimum physical facilities score of 4-5. Based on the scores of physical facilities, it may be generally concluded that the NFE centres possessed poor physical facilities.

Physical facilities—district-wise

Based on the physical facilities score available for 80 NFE centres in all the four districts, the mean physical facilities score was calculated. The NFE centres were classified into three groups based on their physical facilities scores. The centres with mean $+\frac{1}{2}\sigma$ physical facilities score belonged to high group and centres with mean $-\frac{1}{2}\sigma$ physical facilities

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score belonged to low group. Rest of the centres belonged to middle group. As per this classification the NFE centres with high, middle and low physical facilities scores are presented in Table 43.

Table 43 reveals that Kurnool district stood first in having 10 NFE centres with high physical facilities scores. Second place went to Anantapur district. Cuddapah district occupied third place. The last place went to Chittoor district.

The people involved in the NFE programme in Rayalaseema area would be interested in knowing which district was good or bad in prosessing the physical facilities. In order to find out whether there was any significant difference in the availability of physical facilities among the four districts of Rayalaseema region, the following null hypothesis was formulated for testing.

Hypothesis 1

The availability of physical facilities does not significantly very among the four districts of Rayalaseema.

TABLE 43
Physical Facilities of NFE Centres in the four Districts of Rayalaseema

Physical facility score	Districts				Total
	Anantpur	Chittoor	Cuddapah	Kurnool	
High	9 (7.5)	5 (7.5)	6 (7.5)	10 (7.5)	30
Medium	8 (6.75)	6 (6.75)	6 (6.75)	7 (6.75)	27
Low	3 (5.75)	9 (5.75)	8 (5.75)	3 (5.75)	23
Total	20	20	20	20	80

(Figures in parentheses are expected frequencies)
df = 6 $x^2 = 8.02$ (not significant)

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As given in Table 43, the obtained x^2 value was 8.02. The hypothesis did not reach even 0.05 level of probability. Hence the null hypothesis was accepted. There was no significant difference in the availability of physical facilities among the four districts. In other words the number of physical facilities available in the NFE centres in the four districts were almost the same.

6.2.2 Teaching-learning Materials

The information with regard to the availability of teaching-learning materials from the selected 80 NFE centres in all the four districts was gathered with the questionnaire seeking information on teaching-learning materials at the NFE centres. The information was sought for the availability of 15 items of teaching-learning materials (vide questionnaire for instructors, item III).

The centres expressed their opinion about the adequacy or inadequacy of availability of teaching-learning materials and were classified into two categories as (1) centres with adequate availability of teaching-learning materials and (2) centres with inadequate availability of teaching-learning materials. In order to find out whether there was any significant difference in the availability of teaching-learning materials among the four districts of Rayalaseema area the following null hypothesis was formulated for testing.

Hypothesis 2

The availability of teaching-learning materials does not significantly vary among the four districts of Rayalaseema.

As seen from Table 44, the Chi-square test of independence yielded a value of 2.80. The observed result was not significant even at 0.05 level. Therefore, the null hypothesis was accepted. Thus, it was found that the availability of teaching-learning materials in all the four districts were almost the same.

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TABLE 44

Teaching-learning Materials of NFE Centres in the four Districts of Rayalaseema

Availability of teaching-learning materials	Districts				Total
	Anantapur	Chittoor	Cuddapah	Kurnool	
Adequate	9 (8.75)	7 (8.75)	7 (8.75)	12 (8.75)	35
Inadequate	11 (11.25)	13 (11.25)	13 (11.25)	8 (11.25)	45
Total	20	20	20	20	80

(Figures in parentheses are expected frequencies)

df=3

x^2=2.80 (not significant)

6.2.3 Kind of Instructors

The information in respect of the professional qualifications and teaching experience of the instructors was obtained with the help of questionnaire for instructors. The information on professional qualifications was sought in the 11th item of the questionnaire with 5 sub-items and the teaching experience was sought in 13th item of the questionnaire with 10 sub-items.

(A) Professional qualifications

In order to study whether there existed any significant difference in the professional qualifications among the groups of instructors belonging to the four districts, the following null hypothesis was formulated for testing.

Hypothesis 3

The professional qualifications do not significantly vary among the groups of instructors in the four districts of Rayalaseema.

The teachers in each district were classified into with and without professional qualifications.

The x^2 test in contingency tables was employed to examine the significance of the relationship between the number of

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teachers with and without professional qualifications and different districts.

TABLE 45
Professional Qualifications of Teachers in the four Districts of Rayalaseema

Professional qualifications of teachers	Districts				Total
	Anantapur	Chittoor	Cuddapah	Kurnool	
With professional qualifications	8 (6.75)	6 (6.75)	6 (6.75)	7 (6.75)	27
Without professional qualifications	12 (13.25)	14 (13.25)	14 (13.25)	13 (13.25)	53
Total	20	20	20	20	80

(Figures in parentheses are expected frequencies)

df=3.

x^2=1.99 (not significant)

As observed from Table 45, the x^2 test of independence between the professional qualifications of teachers and the districts yielded a value of 1.99 which was not significant even at 0.05 level. Therefore, the null hypothesis was accepted. It may be concluded that the professional qualifications of teachers in the four districts of Rayalaseema did not significantly vary.

Two-thirds of the NFE instructors did not posses any professional qualifications in each district. There was no variation in the professional qualification of instructors in the four districts.

(*B*) *Teaching experience*

To study whether there was any significant difference in the teaching experience among the groups of instructors belonging to the four districts, the following nul hypothesis was set up for testing.

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Hypothesis 4

The teaching experience among the groups of instructors in the four districts of Rayalaseema does not significantly vary.

On the basis of the teaching experience in different educational institutions the instructors were classified in each district into less experienced (upto 3 years of teaching experience) and more experienced (more than 3 years of teaching experience).

On the basis of the hypothesis formulated one expects to find no significant difference in the teaching experience of the groups of insturctors in different districts. To test this proposition the x^2 test of independence in contingence table was applied.

TABLE 46
Teaching Experience of NFE Instructors in the four Districts of Royalaseema

Experience of teachers	Districts				
	Anantapur	Chittoor	Cuddapah	Kurnool	Total
More experience	12 (12.5)	14 (12.5)	10 (12.5)	14 (12.5)	50
Less experience	8 (7.5)	6 (7.5)	10 (7.5)	6 (7.5)	30
Total	20	20	20	20	80

(Figures in parentheses are expected frequencies)

$df=3$

$x^2=2.34$ (not significant)

The x^2 test yielded a value of 2.34 which was not found to be significant even at 0.05 level (vide Table 46). The null hypothesis was therefore accepted. On this basis, it was justifiable to conclude that the teaching experience of NFE instructors in the four districts of Rayalaseema did not significantly differ. In order words there was no considerable variation in the teaching experience of the groups of instructors belonging to the four districts of Rayalaseema.

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6.2.4 Attitude of Instructor Towards NFE

The attitude is an important determinant of human behaviour. As such the attitude of the teachers towards the NFE will play a significant role in making NFE programme a success. An attempt in this study was made to find out the attitude of the instructors towards NFE programme in which they were working.

The data pertaining to the attitude of the teachers towards NFE was collected from 80 NFE instructors by administering the final attitude scale which consists of 26 items. The distribution of the scores of the final attitude scale are given in Table 47. The measures of central tendency, divergence from normality, the measures of variability were calculated and presented in Table 48 and 49.

TABLE 47
Frequency Distribution of Attitude Scores of Teachers

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequencies
49.5-59.5	54.5	—	0.67	—	—
59.5-69.5	64.5	2	3.00	2	2.50
69.5-79.5	74.5	7	7.67	9	11.25
79.5-89.5	84.5	14	17.33	23	28.75
89.5-99.5	94.5	31	20.33	54	67.50
99.5-109.5	104.5	16	17.67	70	87.50
109.5-119.5	114·5	6	8·67	76	95·00
119.5-129.5	124.5	4	3.33	80	100.00
129.5-139.5	134.5	—	1.33	—	—

Mean=95.25 Median=94.98 Mode=94.44

Since the value of the mean was slightly greater than that of the median and the mode, the distribution was considered to be slightly positively skewed.

Standard error of the mean=1.45

'True' mean=95.25±1.45×2.58=lies between 91.51and 98.99 (at 0.01 level)

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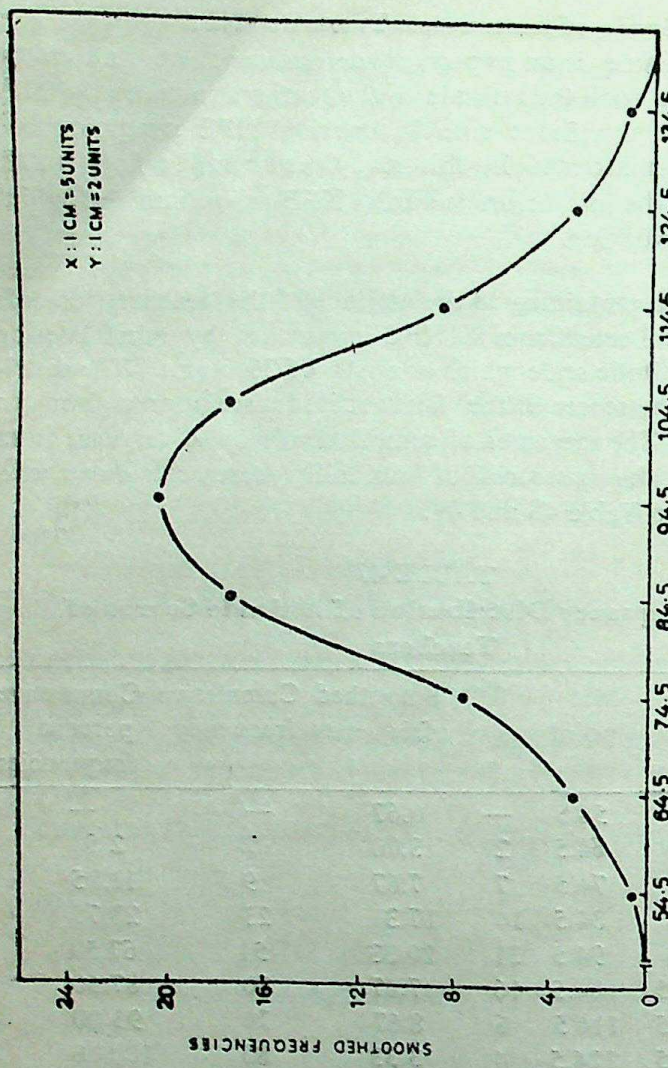

FIG. 1: A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE INSTRUCTORS IN THE ATTITUDE SCALE-ATTITUDE OF TEACHERS TOWARDS N F E

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The true mean lies between 91.51 and 98.99.

Standard error of the median = 1.82.

'True' median = $94.98 \pm 1.82 \times 2.58$ = lies between 90.28 and 99.68 (at 0.01 level)

The true median was found within a range of 90.28 and 99.68 Hence the obtained median could be considered reliable.

Skewness = 0.0623

The distribution was slightly positively skewed. The vale of skewness was 0.60623.

The value of kurtosis of the distribution was 0.2287 and the distribution was slightly leptokurtic. This may also be observed from a study of the frequency polygon shown in figure 1.

Standard deviation = 13.00

Quartile deviation = 7.95

Standard error of the Standard deviation = 1.03

'True' standard deviation = $13.00 \pm 1.03 \times 2.58$ = lies between 10.34 and 15.66 (at 0.01 level)

The obtained standard deviation of the scale was reliable because the true standard deviation was found within a range of 10.34 and 15.66.

TABLE 48

Value of Mean, Median, Mode, Quartile Deviation and Standard Deviation of Attitude Scores of NFE Instructors.

Sl. No.	Description of the measure	Value
1	Mean	95.25
2	SE of mean	1.45
3	Range within which true mean falls	91.51 & 98.99
4	Median	94.98
5	SE of median	1.82
6	Range within which true median falls	90.28 & 99.68
7	Mode	94.44
8	Quartile deviation	7.95
9	S.D.	13.00
10	S.E. of S.D.	1.03
11	Range within which true S.D. falls	10.34 & 15.66

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TABLE 49
Skewness and Kurtosis of the Score Distribution of the Attitude Scale

Sl. No.	Description of the measure	Value	Type
1	Skewness	0.0623	Positive
2	Kurtosis	0.2287	Leptokurtic*

*If the value of kurtosis is less than 0.263, the distribution is leptokurtic.

Attitude of teachers as a whole towards NFE

The maximum score of the attitude scale could be $26 \times 5 = 130$. The minimum score could be $26 \times 1 = 26$. The mean attitude score would be $26 \times 3 = 78$. The observed mean attitude score value was 95.25 which was more than the neutral score by 17.25. It may be inferred that in general the NFE instructors had a favourable attitude towards NFE programme.

There may be many factors which would influence the attitude of teachers favourably or unfavourably. Among such variables sex, age, professional qualifications and experience of the instructors were considered important. On the basis of this assumption, null hypothesis were formulated for testing.

Hypothesis 5

There is no significant difference in the attitude towards the NFE between male and female instructors.

To test the hypothesis the attitude scores of male and female instructors were computed. Means and S.Ds of the attitude scores for both the groups were calculated as shown in Table 50.

TABLE 50
Sex-wise Attitude Scores of the NFE Instructors

Variable	N	Mean	S.D.	C.R.	Level of significance
Male	62	96 25	15.25	0.71	N.S.
Female	18	94.00	10.78		

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An examination of Table 50 indicates that the calculated value of 't' was 0.71. The table value for 78 df was found to be 1.99 at 0.05 level and 2.64 at 0.01 level. The obtained value was found to be less than the table value even at 0.05 level. Hence the difference was not significant and the deviation was attributed to chance. Therefore, the hypothesis was accepted. In other words the attitude of male and female NFE instructor towards the NFE programme was not significantly different.

An observation of the mean attitude scores of male and female instructors indicated that the mean score of the male instructors was slightly more favourable than the female instructors. It may also be observed that both the male and female instructors had favourable attitude towards NFE programme. This conclusion could be arrived at by observing the mean attitude scores of both the groups which were far higher than the neutral attitude score.

Hypothesis 6

There is no significant difference in the attitude towards the NFE between different age groups of instructors.

For testing this hypothesis the attitude scores of the intructors below 30 years (young) and above 30 years (old) were calculated. Means and S.Ds of the attitude scores for both the age groups were computed as shown in Table 51.

TABLE 51
Age-wise Attitude Scores of NFE Instructors

Variable	N	Mean	S.D.	C.R.	Level of significance
Old Group	33	94.65	12.45	0.39	N.S
Young group	47	95.80	13.68		

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An observations of Table 51 shows that obtained value of 't' (0.39) was less than the table value even at 0.05 level. The obtained 't' value did not reach the value required for the chosen level of significance (0.01 level) and the deviation was attributed to chance. The hypothesis, therefore, was accepted. It was concluded that the attitude of the young and old groups of NFE instructors did not significantly differ. An examination of Table 51 reveals that the difference (1.15) between mean attitude scores of young and old groups was almost negligible.

Hypothesis 7

There is no significant difference in the attitude towards the NFE between instructors with and without professional qualifications.

In order to test this hypothesis the attitude scores of instructors with and without professional qualifications were calculated. The means and S Ds for both groups were calculated as shown in Table 52.

TABLE 52
Attitude Scores of Instructors With and Without Professional Qualification towards NFE

Variable	N	Mean	S.D.	C.R.	Level of significance
With professional qualifications	27	98.94	11.65	2.70	0.01
Without professional qualifications	53	90 87	14.36		

From Table 52, it may be observed that the computed 't' value was 2.70. The table value for 78 df was 1.99 at 0 05 level and 2.64 at 0.01 level. The obtained value was found to be higher than the table value beyond 0.01 level. The null hypothesis was therefore, rejected. It may be concluded that there was difference in the attitude of instructors with and without professional qualifications towards NFE.

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If we compare the mean attitude scores of instructors with and without professional qualifications, it was found that the instructors with professional qualifications had a higher mean attitude score by 8.07 than the mean attitude score value of instructors without professional qualifications. This observation led to the conclusion that instructors with professional qualifications were more favourable than instructors without professional qualifications in their attitude towards the NFE programme.

Hypothesis 8

There is no significant difference in the attitude towards the NFE between instructors with less and more teaching experience.

To test this hypothesis, the scores of the instructors with less and more teaching experience on attitude scale were calculated. The means and S.Ds. calculated for both the groups are shown in Table 53.

TABLE 53

Attitude Scores of Instructors with Less and More Teaching Experience

Variable	N	Mean	S.D.	C.R.	Level of significance
More experience	50	98.42	15.29	2.15	0.05
Less experience	30	92.13	10.86		

It may be observed from Table 53 that the calculated 't' value was 2.15. The table value for 78 df was 1·99 at 0.05 level and 2.64 at 0.01 level. The obtained value of 't' was found to be higher than the table value at 0.05 level but less than the table value at 0.01 level. As the 't' value did not reach the value required for the chosen level of significance at 0.01 level, the hypothesis was accepted. It was concluded that there was no significant difference between NFE instructors with less and more teaching experience.

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The mean attitude scores of both groups were more than the neutral mean attitude score value 78. In other words, both the groups of teachers were having favourable attitude. A comparison of the mean attitude score values of these two groups revealed that the mean attitude score value of the more experienced instructors was higher by 6.29 than the mean attitude score value of the instructors with less experience. Hence, it was inferred that the instructors with more teaching experience was having more favourable attitude towards the NFE than the instructors with less teaching experience.

SECTION III

6.3 REASONS FOR ATTENDING AND DROPPING OUT

This section consists of part I and II. Part I deals with the analysis of learners' reasons for attending the NFE centres. Part II is devoted for the analysis of reasons for dropping out from NFE centres.

6.3.1 Learner's Reasons for Attending NFE Centres

The data pertaing to the reasons for attending the NFE centres was gathered by administering the check-list consisting of 14 items to a sample of 400 NFE learners. The rank orders given to the reasons for attending the NFE centres on the basis of the total number of respondents who checked the items in the check-list may be seen from Table 54.

The maximum number of the respondents (300) checked the item with serial number 11 'to be able to read and write lessons' as the first and foremost reason for their attending the NFE centres. 'To read bus name broads', 'to read story books', 'to read the news papers', 'to maintain cleanliness', to teach young children', 'to speak politely', and 'to read names of cine actors' were ranked second, third, fourth, fifth, sixth, seventh and eighth respectively as the reasons for attening the NFE centres. Minimum number of respondents (6) checked the item number 14, 'any other' which ranked last.

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TABLE 54

Responses on the Reasons for Attending the NFE Centres

Sl. No. of the reason	Number of respondents who checked the reason	Percentage of respondents who checked the reason	Rank order of the reason
1	71	17.75	11
2	250	62.50	3
3	121	30.25	8
4	288	72.00	2
5	217	54.25	4
6	103	25.75	10
7	104	26.00	9
8	151	37.75	6
9	128	32.00	7
10	216	54.00	5
11	300	75.00	1
12	59	14.75	12
13	12	3.00	13
14	6	1.50	14

Ranking of reasons given by the learners for attending NFE centres

Again the data were analysed to know whether the rank orders differed significantly between the groups of a variable under study. The variables included in the study were (1) districts (2) sex (3) age (4) caste (5) occupation of parent (6) size of the land holding of parent (7) development of locality. Variable-wise null hypotheses were formulated for testing.

District

Hypothesis 9

The ranking of reasons given by the NFE learners for attending the NFE centres does not significantly vary among the groups of four districts of Rayalaseema.

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As there were more than two categories of ranks (vide Table 55) Kendall's co-efficient of concordance (W) was employed. The calculated value of W was 0.8575 for which the transformed value of X^2 was 44.72. This value was significant at 0.01 level for 13 df. Hence, the null hypothesis was rejected and it was concluded that there was a significant agreement between the groups of NFE learners belonging to different districts in giving the reasons for attending the NFE centres.

Sex

Hypothesis 10

The ranking of reasons given by the NFE learners for attending the NFE centres does not significantly vary between boys and girls.

As seen from Table 56, the calculated value of rank correlation co-efficient was 0.905 which was higher than the table value at 0.01 level. Therefore, the null hypothesis was rejected. It led to the conclusion that there was a significant agreement between the boys and girls in the NFE centres in ranking the reasons for attending the NFE centres. Since co-efficient of correlation was high in ranking the reasons for attending the NFE centres by the boys and girls, it was concluded that they had the nearest approach in deciding the reasons for attending the NFE centres.

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TABLE 55

Ranking of Reasons Given by the Learners in Different Districts of Rayalaseema for Attending the NFE Centres

Sl. No.	Number of the learners who checked the reason				Ranks				Sum of ranks	
	*An	Ch	Cu	Ku	An R_1	Ch R_2	Cu R_3	Ku R_4	Ri	Ri^2
1	7	5	39	20	12	12.5	5	11	40.5	1640.25
2	66	80	33	71	2	3	6	3	14.0	196.00
3	40	40	5	36	6	7.5	12	8	33.5	1122.25
4	58	84	66	80	3	1	1	2	7.0	49.00
5	56	49	60	52	4	6	3	5.5	18.5	342.25
6	18	52	6	27	10	5	11	9	35.0	1225.00
7	20	30	28	26	9	10	7.5	10	36.5	1332.25
8	32	40	27	52	7	7.5	9	5.5	29.0	841.00
9	30	33	28	37	8	9	7.5	7	31.5	992.25

1	2	3	4	5	6	7	8	9	10	11
10	44	54	56	62	5	4	4	4	17.0	289.00
11	74	82	61	83	1	2	2	1	6.0	36.00
12	8	20	13	18	11	11	10	12	44.0	1936.00
13	2	5	2	3	13.5	12.5	13	13	52.0	2704.00
14	2	1	1	2	13.5	14	14	14	55.5	3080.25
									$\Sigma Ri=421.0$	$\Sigma Ri^2=15785.50$

*An=Anantapur Ch=Chittoor Cu=Cuddapah Ku=Kurnool

$$S=\Sigma Ri^2-\frac{(\Sigma Ri)^2}{N}=15785.5-\frac{(421)^2}{14}=3125.43$$

$$W=\frac{S}{1/12\ K^2\ (N^3-N)}=\frac{3125.43}{1/12\times16\times2744-14}=0.8575$$

Transformed value of $X^2=K\ (N-1)\ W=4\times13\times0.86=44.72$ (Significant at 0.01 level)

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TABLE 56
Ranking of Reasons Given by Boys and Girls for Attending the NFE Centres

Sl. No.	Number of learners who checked the reason		Ranks		(R_1-R_2) D	D^2
	Boys	Girls	Boys R_1	Girls R_2		
1	40	31	11.5	11	0.5	0.25
2	150	100	3	1	2.0	4.00
3	80	41	7	8.5	0.5	0.25
4	220	68	2	5	3.0	9.00
5	130	87	4	3	1.0	1.00
6	62	41	10	8.5	1.5	2.25
7	70	34	8	10	2.0	4.00
8	90	61	6	6	0.0	0.00
9	68	60	9	7	2.0	4.00
10	123	93	5	2	3.0	9.00
11	230	70	1	4	3.0	9.00
12	40	19	11.5	12	0.5	0.25
13	8	4	13	13	0.0	0.00
14	4	2	14	14	0.0	0.00
						$\Sigma D^2=43.00$

$$P=1-\frac{6\Sigma D^2}{N(N^2-1)}$$

$$=1-\frac{6\times 43}{14\times 14^2-1}$$

$$=0.905 \text{ (Significant at 0.01 level)}$$

Age

Hypothesis 11

The ranking of reasons given by the learners for attending the NFE centres does not significantly vary between the two age groups.

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TABLE 57

Ranking of Reasons Given by the Learners Belonging to the Two Age Groups for Attending the NFE Centres

Sl. No.	Number of learners who checked the reason		Ranks		(R_1-R_2) D	D^2
	9-11 years	12-14 years	9-11 years R_1	12-14 years R_2		
1	20	51	11	11	0.0	0.00
2	60	190	5	3	2.0	4.00
3	31	90	10	8	2.0	4.00
4	92	196	2	2	0.0	0.00
5	95	122	1	5	4.0	16.00
6	33	70	9	9	0.0	0.00
7	35	69	7.5	10	2.5	6.25
8	41	110	6	6	0.0	0.00
9	35	93	7.5	7	0.5	0.25
10	84	132	3	4	1.0	1.00
11	75	225	4	1	3.0	9.00
12	16	43	12	12	0.0	0.00
13	3	9	13.5	13	0.5	0.25
14	3	3	13.5	14	0.5	0.25
						$\Sigma D^2=41.00$

P=0.909 (Significant at 0.01 level)

The obtained value of rank correlation co-efficient (0.909) was higher than the table value beyond 0.01 level (vide Table 57). Hence, the null hypothesis was rejected and it was concluded that there was a significant agreement between the 9-11 years age group and 12-14 years age group in ranking the reasons for attending the NFE centres. As the correlation co-efficient was very high, it was concluded that these two age groups had the nearest approach in deciding the reasons for attending the NFE centres.

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Caste

Hypothesis 12

The ranking of reasons given by the learners for attending the NFE centres does not significantly vary among different caste groups.

As observed from Table 58, there were more than two categories of respondents who checked the reasons. Hence Kendall's co-efficient of concordance (W) was applied. The value of W was 0.918 for which the transformed value of X^2 was 35.88. This value was significant beyond 0.01 level.

TABLE 58

Ranking of Reasons Given by the Learners Belonging to Different Caste Groups for Attending the NFE Centres

Sl. No.	Number of learners who checked the reason			Ranks			Sum of ranks	
	SC, ST	BC	OC	SC, ST R_1	BC R_2	OC R_3	Ri	Ri^2
1	17	34	20	11	11	11	33.0	1089.00
2	54	126	70	3	3	5	11.0	121.00
3	40	61	20	5	7	11	23.0	529.00
4	75	130	83	1	1.5	4	6.5	42.25
5	40	92	85	5	4	3	12.0	144.00
6	20	45	38	9.5	9	8	26.5	702.25
7	22	42	40	8	10	7	25.0	625.00
8	20	69	62	9.5	6	6	21.5	462.25
9	35	60	33	7	8	9	24.0	576.00
10	40	90	86	5	5	2	12.0	144.00
11	70	130	100	2	1.5	1	4.5	20.25
12	10	29	20	12	12	11	35.0	1225.00
13	4	5	3	13	13	13	39.0	1521.00
14	1	3	2	14	14	14	42.0	1764.00
							ΣRi =315.0	ΣRi^2 =8965.00

W=0.918

Transformed value of X^2=35.88 (Significant at 0.01 level)

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TABLE 59
Ranking of Reasons Given by the Learners from Families with Different Occupations for Attending the NFE Centres

Sl. No.	Number of learners who checked the reason			Ranks			Sum of ranks	
				A	L	C		
	*A	L	C	R_1	R_2	R_3	Ri	Ri^2
1	17	15	39	12	11	7	30.0	900.00
2	110	100	40	3	1	6	10.0	100.00
3	51	41	29	8.5	6	11	25.5	650.25
4	138	99	51	2	2	3.5	7.5	56.25
5	98	66	53	5	5	1.5	11.5	132.25
6	51	20	32	8.5	10	9.5	28.0	784.00
7	42	28	34	10	9	8	27.0	729.00
8	60	40	51	7	7	3.5	17.5	306.25
9	62	34	32	6	8	9.5	23.5	552.25
10	106	68	42	4	4	5	13.0	169.00
11	170	77	53	1	3	1.5	5.5	30.25
12	18	13	28	11	12	12	35.0	1225.00
13	6	3	3	13	13	13	39.0	1521.00
14	3	2	1	14	14	14	42.0	1764.00
							$\Sigma Ri=315.0$	$\Sigma Ri^2=8919.50$

*A=Agriculturists
L=Labourers
C=Caste occupation and others
W=0.896
Transformed value of $X^2=35.1$ (Significant at 0.01 level)

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Therefore, the null hypothesis was rejected. It was concluded that there was agreement between the three caste groups of SC, ST ; BC and OC in checking the reasons for attending the NFE centres.

Occupation of Parent

Hypothesis 13

The ranking of reasons for attending the NFE centres does not significantly vary among learners belonging to different occupational groups.

For testing the null hypothesis Kendall's co-efficient of concordance was calculated. The observed value of W was 0.896, for which the transformed value of X^2 was 35.1 (vide Table 59). This was significant beyond 0.01 level. The null hypothesis was rejected. It was concluded that there was agreement between the learners from families with different occupations in checking the reasons for attending the NFE centres.

Size of Land Holding of Parent

Hypothesis 14

The ranking of reasons for attending the NFE centres does not significantly vary among learners from families with different sizes of land holding.

To test whether there was any significant disagreement between the learners from families with different sizes of land holding in giving the reasons for attending the NFE centres, Kendall's co-efficient of concordance (W) was applied. Its value was 0.967 for which the transformed value of X^2 was 37.83 (vide Table 60). It was significant beyond 0.01 level. So the null hypothesis was rejected and it was concluded that there was agreement between the groups of learners from families with different sizes of land holding in checking the reasons for attending the NFE centres.

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TABLE 60

Ranking of Reasons Given by the Learners from Families With Different Sizes of Land Holding for Attending the NFE Centres

Sl. No.	Number of learners who checked the reason			Ranks			Sum of ranks	
	No land	Less land	More land	No land R_1	Less land R_2	More land R_3	Ri	Ri^2
1	34	21	16	11	11	12	34.0	1156.00
2	117	83	50	3	3	2.5	8.5	72.25
3	56	43	22	8	8	8.5	24.5	600.25
4	142	96	50	1	2	2.5	5.5	30.25
5	99	75	43	4	4	5	13.0	169.00
6	49	30	24	10	10	6	26.0	676.00
7	52	37	15	9	9	11	29.0	841.00
8	72	56	23	6	6	7	19.0	361.00
9	58	48	22	7	7	8.5	22.5	506.25
10	94	74	48	5	5	4	14.0	196.00
11	139	101	60	2	1	1	4.0	16.00
12	20	20	19	12	12	10	34.0	1156.00
13	5	4	3	13	13	13	39.0	1521.00
14	3	1	2	14	14	14	42.0	1764.00
							$\Sigma Ri=315.0$	$\Sigma Ri^2=9065.00$

$W=0.967$

Transformed value of $X^2=37.83$ (Significant at 0.01 level)

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Development of Locality

Hypothesis 15

The ranking of reasons for attending the NFE centres does not significantly vary among learners from different levels of development of locality.

TABLE 61

Ranking of Reasons Given by the Learners from Different Levels of Development of Locality for Attending the NFE Centres

Sl. No.	Number of learners who checked the reason			Ranks			Sum of ranks Ri	Ri^2
	Poorly developed	Some what developed	Well developed	Poorly developed R_1	Some what developed R_2	Well developed R_3		
1	27	24	20	12	11	11	34	1156
2	106	92	52	4	3	5	12	144
3	50	39	32	7	8	9	24	576
4	120	100	68	3	2	2	7	49
5	70	82	65	5	4	3	12	144
6	32	31	40	9	10	7	26	676
7	29	32	43	11	9	6	26	676
8	47	40	64	8	7	4	19	361
9	60	42	26	6	6	10	22	484
10	140	43	33	1	5	8	14	196
11	127	104	69	2	1	1	4	16
12	30	17	12	10	12	12	34	1156
13	5	4	3	13	13	13	39	1521
14	2	2	2	14	14	14	42	1764
							$\Sigma Ri=315$	$\Sigma Ri^2=8919$

$W=0.896$

Transformed value of $X^2=35.1$ (Significant at 0.01 level)

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For testing the null hypothesis Kendall's co-efficient of concordance was computed. The calculated value was 0.896 for which the transformed value of X^2 was 35.1 (vide Table 61). This was significant at 0.01 level for 13 df. Hence, the null hypothesis was rejected and it was concluded that there was agreement between the learners from different levels of development of locality in checking the reasons for attending the NFE Centres.

6.3.2 Reasons for Dropping from NFE Centres

The data pertaining to the reasons for dropping out from NFE centres was gathered by administering the check-list consisting of 22 items to a sample of 160 drog-outs from NFE centres. The rank orders given to the reasons for dropping from NFE centres on the basis of the total number of respondents who checked the items in the check-list may be seen from Table 62.

The maximum number of the respondents (101) checked the item with serial number 2, 'engaged in house hold work' as the first and foremost reason for their dropping from the NFE centres. 'Tired of day to day work', 'family problems', 'ill health', 'migration to other village', 'no companion', 'to look after children', 'felt shy in going to centre', 'scared of coming at night' and 'due to redicule of people' were ranked second, third, fourth, fifth, sixth, seventh, eighth, nineth and tenth respectively as the reasons for dropping out from the NFE centres.

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TABLE 62
Responses on the Reasons for Dropping out from the NFE Centres

Sl. No. of the reason	Number of respondents who checked the reason	Percentage of respondents who checked the reason	Rank order of the reason
1	26	16.25	7
2	101	63.13	1
3	67	41.88	2.5
4	21	13.13	8
5	27	16.88	6
6	20	12.50	9.5
7	30	18.75	4
8	13	8.13	11.5
9	29	18.13	5
10	67	41.88	2.5
11	12	7.50	14.5
12	12	7.50	14.5
13	20	12.50	9.5
14	12	7.50	14.5
15	11	6.88	17
16	13	8.13	11.5
17	10	6.25	18
18	8	5.00	20.5
19	12	7.50	14.5
20	8	5.00	20.5
21	9	5.63	19
22	7	4.38	22

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Ranking of reasons given by drop-outs for their dropping from NFE centres

Again the data were analysed to know whether the rank orders differed significantly between the groups of a variable under study. The variables included in the study were (1) districts (2) sex (3) age (4) caste (5) occupation of parent (6) size of the land holding of parent (7) development of locality. Variable-wise null hypotheses were formulated for testing.

District

Hypothesis 16

The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary among groups of four districts of Rayalaseema.

As there were more than two categories of ranks (vide Table 63) Kendall's co-efficient of concordance (W) was employed. The calculated value of W was 0.70 for which the transformed value of X^2 was 58.8. This value was significant at 0.01 level for 21 df. Hence the null hypothesis was rejected and it was concluded that there was significant agreement between the groups of NFE learners belonging to different districts in giving the reasons for dropping out from the NFE centres.

Sex

Hypothesis 17

The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary between boys and girls.

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TABLE 63

Ranking of Reasons Given by Drop-outs for Their Dropping Out from NFE Centres in Four Districts of Rayalaseema

Sl. No.	Number of drop-outs who checked the reason				Ranks				Sum of ranks	Ri^2
	*An	Ch	Cu	Ku	An R_1	Ch R_2	Cu R_3	Ku R_4	Ri	
1	4	11	3	8	8.5	4.5	11	4.5	28.5	812.25
2	21	26	26	28	1	1	1	2	4.0	16.00
3	10	19	19	19	5	2	1	2	11.0	121.00
4	5	1	20	4	6.5	6.5	18	9	40.0	1600.00
5	11	8	5	3	4	9	5.5	14	32.5	1056.25
6	2	6	5	7	19	11	5.5	6	41.5	1722.25
7	4	11	7	8	8.5	4.5	4	4.5	21.5	462.25
8	2	7	2	2	19	10	18	20	67.0	4489.00
9	12	9	3	5	3	8	11	7	29.0	841.00
10	19	13	17	18	2	3	3	3	11.0	121.00

1	2	3	4	5	6	7	8	9	10	11
11	3	3	2	4	13	13.5	18	9	53.5	2862.25
12	3	2	4	3	13	18	7.5	14	52.5	2756.25
13	5	10	2	3	6.5	6.5	18	14	45.0	2025.00
14	3	3	3	3	13	13·5	11	14	51.5	2652.25
15	3	2	3	3	13	18	11	14	56.0	3136.00
16	2	5	4	2	19	12	7.5	20	58.5	3422.25
17	3	2	2	3	13	18	18	14	63.0	3969.00
18	2	2	2	2	19	18	18	20	75.0	5625.00
19	3	2	3	4	13	18	11	9	51.0	2601.00
20	2	2	2	2	19	18	18	20	75.0	5625.00
21	3	1	2	3	13	22	18	14	67.0	4489.00
22	1	2	2	2	22	18	18	20	78.0	6084.00
									$\Sigma Ri=1012.0$	$\Sigma Ri^2=56488.00$

*An=Anantapur Ch=Chittoor Cu=Cuddapah Ku=Kurnool W=0.70

Transformed value of $X^2=58.8$ (Significant at 0.01 level)

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TABLE 64

Ranking of Reasons Given by Boys and Girls for Dropping out from NFE Centres

Sl. No.	Number of Drop-outs who checked the reason		Ranks			
	Boys	Girls	Boys R_1	Girls R_2	(R_1-R_2) D	D^2
1	12	14	6	5	1.0	1.00
2	48	53	1	1	0.0	0.00
3	40	27	2	3	1.0	1.00
4	9	12	8	8.5	0.5	0.25
5	1	26	22	4	18.0	324.00
6	8	12	10	8.5	1.5	2.25
7	17	13	4	6.5	1.5	2.25
8	6	7	15.5	12	3.5	12.25
9	16	13	5	6.5	1.5	2.25
10	35	32	3	2	1.0	1.00
11	7	5	13	15	2.0	4.00
12	6	6	15.5	13	2.5	6.25
13	11	9	7	10	3.0	9.00
14	7	5	13	15	2.0	4.00
15	7	4	13	18	3.0	9.00
16	5	8	17.5	11	6.5	42.25
17	8	2	10	22	12.0	144.00
18	5	3	17.5	20.5	3.0	9.00
19	8	4	10	18	8.0	64.00
20	4	4	20	18	2.0	4.00
21	4	5	20	15	5.0	25.00
22	4	3	20	20.5	0.5	0.25
						$\Sigma D^2=667.00$

$P=0.623$ (Significant at 0.01 level)

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The calculated value of rank correlation co-efficient was 0.623 which was higher than the table value at 0.01 level (vide Table 64). Therefore, the null hypothesis was rejected. It led to the conclusion that there was a significant agreement between the boys and girls in the NFE centres in ranking the reasons for dropping out from the NFE centres. Since co-efficient of correlation was high in ranking the reasons for dropping out from NFE centres by the boys and girls, it was concluded that they had the nearest approach in deciding the reasons for dropping out from the NFE centres.

Age

Hypothesis 18

The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary between the two age groups.

The obtained value of rank correlation co-efficient (0.534) was less than the table value at 0.01 level (vide Table 65). Hence the null hypothesis was retained and it was concluded that there was no significant agreement between the 9-11 years age group and 12-14 years age group in ranking the reasons for dropping out from the NFE centres. As the correlation co-efficient was low, it was concluded that these two age groups differ in deciding the reasons for dropping out from the NFE centres.

Caste

Hypothesis 19

The ranking of reasons given by the drop-outs for their dropping out from NFE centres does not significantly vary among different caste groups.

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TABLE 65

Ranking of Reasons Given by Drop-outs Belonging to the Two Age Groups for Dropping out from NFE Centres

Sl. No.	Number of drop-outs who checked the reason		Ranks			
	9-11 years	12-14 years	9-11 years R_1	12-14 years R_2	(R_1-R_2) D	D^2
1	8	18	7.5	5	2.5	6.25
2	28	73	1	1	0.0	0.00
3	20	47	2	3	1.0	1.00
4	5	16	14	7	7.0	49.00
5	3	24	20	4	16.0	256.00
6	13	7	5	12.5	7.5	56.25
7	18	12	3.5	9	5.5	30.25
8	8	5	7.5	19	11.5	132.25
9	12	17	6	6	0.0	0.00
10	18	49	3.5	2	1.5	2.25
11	7	5	9	19	10.0	100.00
12	6	6	11	15	4.0	16.00
13	6	14	11	8	3.0	9.00
14	6	6	11	15	4.0	16.00
15	5	6	14	15	1.0	1.00
16	5	8	14	10.5	3.5	12.25
17	3	7	20	12.5	7.5	56.25
18	3	5	20	19	1.0	1.00
19	4	8	17	10.5	6.5	42.25
20	4	4	17	22	5.0	25.00
21	4	5	17	19	2.0	4.00
22	2	5	22	19	3.0	9.00
						$\Sigma D^2=825.00$

P=0.534 (Significant at 0.05 level)

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TABLE 66

Ranking of Reasons Given by Drop-outs Belonging to the Different Caste Groups for Dropping out from the NFE Centres

Sl. No.	Number of drop-outs who checked the reason			Ranks			Sum of ranks	Ri^2
	SC, ST	BC	OC	SC, ST R_1	BC R_2	OC R_3	Ri	
1	7	13	6	8	5.5	8	21.5	462.25
2	34	48	19	1	1	2	4.0	16.00
3	24	31	12	2	2.5	3	7.5	56.25
4	8	9	4	6	8.5	14.5	29.0	841.00
5	7	12	8	8	8	4	19.0	361.00
6	5	9	6	10	8.5	7	26.5	702.25
7	9	15	6	4.5	4	3	16.5	272.25
8	4	5	4	11.5	12	14.5	38.0	1444.00
9	9	13	7	4.5	5.5	5.5	15.5	240.25
10	16	31	20	3	2.5	1	6.5	42.25

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11	6	4	2	10	15	21	46.0	2116.00
12	3	5	4	16	12	14.5	42.5	1806.25
13	7	8	5	8	10	10.5	28.5	812.25
14	3	5	4	16	12	14.5	42.5	1806.25
15	3	4	4	16	15	14.5	45.5	2070.25
16	3	3	7	16	19	5.5	40.5	1640.25
17	2	4	4	20.5	15	14.5	50.0	2500.00
18	3	3	2	16	19	21	56.0	3136.00
19	4	3	5	11.5	19	10.5	41.0	1681.00
20	3	3	2	16	19	21	56.0	3136.00
21	3	3	3	16	19	18.5	53.5	2862.25
22	2	2	3	20.5	22	18.5	61.0	3721.00
							$\Sigma Ri=747.0$	$\Sigma Ri^2=31725.00$

$W=0.798$

Transformed value of $X^2=50.4$ (Significant at 0.01 level)

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As there were more than two categories of respondents who checked the reasons, Kendall's co-efficient of concordance (W) was applied. The value of W was 0.798 for which the transformed value of X^2 was 50.4 (vide Table 66). This value was significant beyond 0.01 level. Therefore, the null hypothesis was rejected. It was concluded that there was agreement between the three caste groups of SC, ST ; BC and OC for checking the reasons for dropping out from the NFE centres.

Occupation of parent

Hypothesis 20

The ranking of reasons given for dropping out from NFE centres does not significantly vary among drop-outs belonging to different occupational groups.

For testing the null hypothesis Kendall's co-efficient of concordance was calculated. The observed value was 0.763 for which the transformed value of X^2 was 47.88 (vide Table 67). This was significant beyond 0.01 level. The null hypothesis was rejected. It was concluded that there was agreement between the drop-outs from families with different occupations in checking the reasons for dropping out from the NFE centres.

Size of the Land Holding of Parent

Hypothesis 21

The ranking of reasons for dropping out from NFE centres does not significantly vary among drop-outs from families with different sizes of land holding.

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TABLE 67

Ranking of Reasons Given by Drop-outs from Families with Different Occupations for Dropping Out From NFE Centres

Sl. No.	Number of drop-outs who checked the reason			Ranks			Sum of ranks	Ri^2
				A	L	C		
	*A	L	C	R_1	R_2	R_3	Ri	
1	14	9	3	4	5.5	19	28.5	812.25
2	44	45	12	1	1	2	4.0	16.00
3	31	26	10	3	2	3	8.0	64.00
4	9	4	8	8	14	5.5	27.5	756.25
5	11	10	6	7	4	8.5	19.5	380.25
6	8	5	7	9.5	10	7	26.5	702.25
7	13	9	8	5	5.5	5.5	16.0	256.00
8	5	4	4	12.5	14	15	41.5	1722.25
9	12	8	9	6	7	4	17.0	289.00
10	32	21	14	2	3	1	6.0	36.00
11	5	3	4	12.5	18	15	45.5	2070.25
12	4	3	5	15	18	11	44.0	1936.00
13	8	6	6	9.5	8	8.4	26.0	676.00
14	3	4	5	18	14	11	43.0	1849.00
15	4	4	3	15	14	19	48.0	2304.00
16	4	4	5	15	14	11	40.0	1600.00
17	3	3	4	18	18	15	51.0	2601.00
18	2	2	4	20.5	21	15	56.5	3192.25
19	6	2	4	11	21	15	47.0	2209.00
20	3	2	3	18	21	19	58.0	3364.00
21	2	5	2	20.5	10	21	51.5	2652.25
22	1	5	1	22	10	22	50.0	2500.00
							$\Sigma Ri=755.0$	$\Sigma Ri^2=31988.00$

*A=Agriculturists
L=Labourers
C=Caste occupation and others

W=0.763 Transformed value of $X^2=47.88$ (Significant at 0.01 level)

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TABLE 68

Ranking of Reasons Given by Drop-outs from Families with Different Sizes of Land Holding for Dropping out from NFE Centres

Sl. No.	Number of drop-outs who chacked the reason			Ranks			Sum of ranks Ri	Ri^2
	No land	Less land	More land	No land R_1	Less land R_2	More land R_3		
1	11	9	6	7	6	10	23.0	529.00
2	43	38	20	1	1	1	3.0	9.00
3	21	30	16	3	2	2	7.0	49.00
4	6	9	6	11	6	10	27.0	729.00
5	13	8	6	4.5	8	10	22.5	506.25
6	7	5	8	9.5	10	5	24.5	600.25
7	12	10	8	6	4	5	15.0	225.00
8	5	4	4	14	13	15.5	42.5	1806.25
9	13	9	7	4,5	6	7,5	18.0	324.00

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10	29	26	12	2	3	3	8.0	64.00
11	3	4	5	19	13	13	45.0	2025.00
12	5	2	5	14	18	13	45.0	2025.00
13	7	5	8	9.5	10	5	24.5	600.25
14	5	4	3	14	13	18	45.0	2025.00
15	2	2	7	21	18	7.5	46.5	2162.25
16	8	2	3	8	18	18	44.0	1936.00
17	2	5	3	21	10	18	49.0	2401.00
18	4	2	2	17.5	18	21	56.5	3192.25
19	5	2	5	14	18	13	44.0	1936.00
20	2	2	4	21	18	15.5	54.5	2970.25
21	5	2	2	14	18	21	53.0	2809.00
22	4	1	2	17.5	22	21	60.5	3660.25
							$\Sigma Ri=758.0$	$\Sigma Ri^2=32583.25$

$W=0.802$

Transformed value of $X^2=51.03$ (significant at 0.01 level)

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To test whether there was any significant disagreement between the drop-outs from families with different sizes of land holding in giving the reasons for dropping out from the NFE centres, Kendall's co-efficient of concordance (W) was applied. Its value was 0.81 for which the transformed value of X^2 was 51.03 (vide Table 68). It was significant beyond 0.01 level. So, the null hypothesis was rejected and it was concluded that there was agreement between the groups of drop-outs from families with different sizes of land holding in checking the reasons for dropping out from the NFE centres.

Development of Locality

Hypothesis 22

The ranking of reasons for dropping out from the NFE centres does not significantly vary among drop-outs from different levels of development of locality.

For testing the null hypotheses Kendall's co-efficient of concordance was computed. The observed value was 0.431 for which the transformed value of X^2 was 27.09 (vide Table 69). This was not significant at 0.01 level. Hence the null hypothesis was retained and it was concluded that there was disagreement between the drop-outs from different levels of development of locality in checking the reasons for dropping out from the NFE centres.

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TABLE 69

Ranking of Reasons Given by Drop-outs from Different Levels of Development of Locality for Dropping out from NFE Centres

Sl. No.	Number of drop-outs who checked the reason			Ranks			Sum of ranks Ri	Ri^2
	Poorly developed	Some what developed	Well developed	Poorly developed R_1	Some what developed R_2	Well developed R_3		
1	2		3	4	5	6	7	8	9
1	12	9	5	7	5.5	7	19.5		380.25
2	54	34	13	1	1	2	4.0		16.00
3	33	24	10	2	2	3	7.0		49.00
4	10	7	4	8	9	10	27.0		729.00
5	15	9	3	5	5.5	13.5	24.0		576.00
6	9	7	4	9	9	10	28.0		784.00
7	15	10	5	5	4	7	16.0		256.00
8	5	4	4	15	14	10	39.0		1521.00
9	15	8	6	5	7	5	17.0		289.00
10	30	23	14	3	3	1	7.0		49.00

Contd. Table 69

1	2		3	4	5	6	7	8	9
11	5	5	2	15	11	19	45.0		2025.00
12	5	4	3	15	14	13.5	42.5		1806.25
13	5	7	8	15	9	4	28.0		784.00
14	5	4	3	15	14	13.5	42.5		1806.25
15	5	4	2	15	14	19	48.0		2304.00
16	7	4	2	10	14	19	43.0		1849.00
17	6	2	2	11	20	19	50.0		2500.00
18	4	2	2	20	20	19	59.0		3481.00
19	4	3	5	20	17	7	44.0		1936.00
20	4	2	2	20	20	19	59.0		3481.00
21	5	2	2	15	20	19	54.0		2916.00
22	2	2	3	22	20	13.5	55.5		3080.25
							$\Sigma Ri=759.0$		$\Sigma Ri^2=29618.00$

$W=0.431$

Transformed value of $X^2=27.09$ (Not significant)

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SECTION IV

6.4 LEARNING OUTCOMES AND DESCRIPTIVE CHARACTERISTICS OF SCORE DISTRIBUTION

The learning outcomes of the NFE centres are described in terms of the performance of the learners in Telugu test, Arithmetic test, Problem Areas test and Total test. The performance of the formal primary school childern in these tests is also described to get a comparative account. In other words, the distribution of scores of the final achievement tests of the NFE learners and formal primary school pupils are described in this section. The measures of central tendency—mean, median and mode ; standard error of the mean and median; divergence from normality—skewness and kurtosis the measures of variability—the quartile deviation, the standard deviation and standard error of the standard deviation were calculated for the above mentioned tests and are presented.

6.4.1 Learning Outcomes—NFE Learners

TABLE 70

Frequency Distribution of Scores of NFE Learners in Telugu Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequency
0.5— 4.5	2	—	0.66	—	—
4.5— 9.5	7	2	2.00	2	0.50
9.5—14.5	12	4	7.67	6	1.50
14.5—19.5	17	17	25.67	23	5.75
19.5—24.5	22	56	47.00	79	19.75
24.5—29.5	27	68	68.00	147	36.75
29.5—34.5	32	80	70.33	227	56.75
34.5—39.5	37	63	65.33	290	72.50
39.5—44.5	42	53	50.33	343	85.75
44.5—49.5	47	35	35.00	378	94.50
49.5—54.5	52	17	19.00	395	98.75
54.5—59.5	57	5	7.33	400	100.00
59.5—64.5	62	—	1.67	—	—

Mean =33.38
Median=32.81
Mode =31.68

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Since the value of the mean was slightly greater than that of the median and the mode, the distribution was considered to be slightly positively skewned.

Standard error of the mean=0.49
'True' mean=33.38±0.49×2.58=lies between
32.12 and 34.64 (at 0.01 level)

The true mean was found between a narrow range of 32.12 and 34.64. Hence the obtained mean was considered reliable.

Standard error of the median=0.61
'True' median=32.81±0.61×2.58=lies between
31.23 and 34.39 (at 0.01 level)

The obtained median was reliable as the true median was found within a narrow range of 31.23 and 34.39.

Skewness=0.174

The distribution was slightly positively skewed. The value of skewness was 0.174. This negligible degree of positive skewness showed how closely the distribution approached the normal form.

The value of kurtosis of the distribution was 0.278 and the distribution was slightly platykurtic. That is, the frequency distribution was slightly more flat than the normal. The same is observed from the study of the frequency polygon shown in Figure 2.

Standard deviation=9.75
Quartile deviation =7.20
Standard error of standard deviation=0.35
'True' standard deviation=9.75±0.35×2.58
=lies between 8.85 and 10.65 (at 0.01 level)

As the true standard deviation was found to be within a narrow range of 8.85 and 10.65, the obtained standard deviation was considered reliable.

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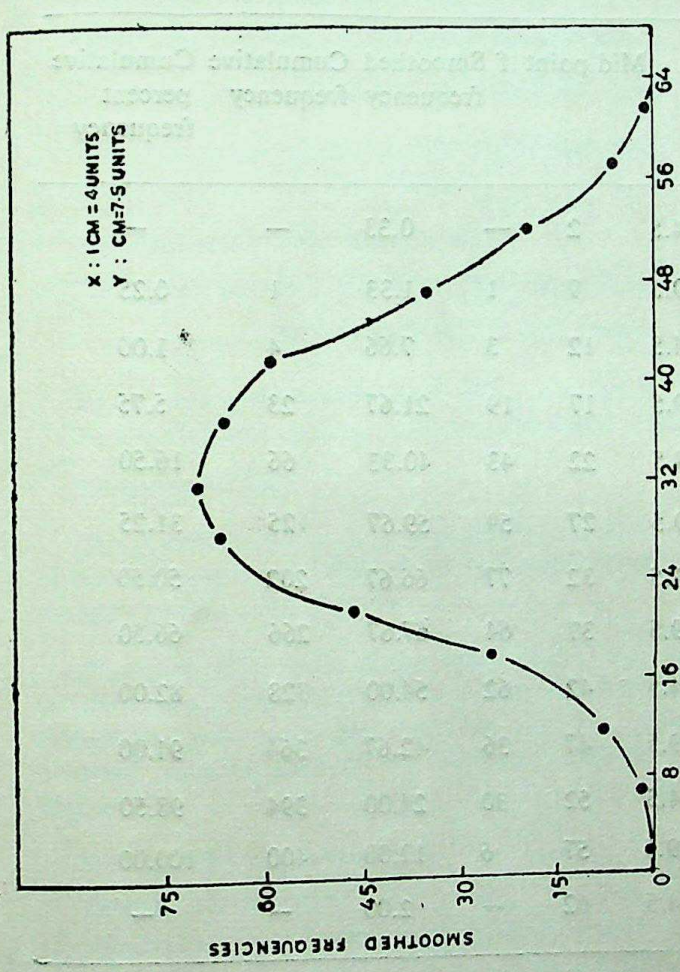

FIG. 2: A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE N F E LEARNERS IN TELUGU TEST

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TABLE 71

Frequency Distribution of Scores of NFE Learners in Arithmetic Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequency
0.5— 4.5	2	—	0.33	—	—
4.5— 9.5	7	1	1.33	1	0.25
9.5—14.5	12	3	7.66	4	1.00
14.5—19.5	17	19	21.67	23	5.75
19.5—24.5	22	43	40.33	66	16.50
24.5—29.5	27	59	59.67	125	31.25
29.5—34.5	32	77	66.67	202	50.50
34.5—39.5	37	64	67.67	266	66.50
39.5—44.5	42	62	54.00	328	82.00
44.5—49.5	47	36	42.67	364	91.00
49.5—54.5	52	30	24.00	394	98.50
54.4—59.5	57	6	12.00	400	100.00
59.5—64.5	62	—	2.00	—	—

Mean =34.84

Median=34.37

Mode =33.43

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The value of the mean was slightly greater than that of the median and the mode. Hence the distribution was considered to be slightly positively skewed.

Standard error of the mean=0.50

'True' mean=$34.84 \pm 0.50 \times 2.58$=lies between

33.55 and 36.13 (at 0.01 level)

The obtained mean was reliable as the true mean was found within a range of 33.55 and 36.13.

Standard error of the median=0.63

'True' median=$34.37 \pm 0.63 \times 2.58$=lies between

32.74 and 36.00 (at 0.01 level)

As the true median was found within a range of 32.74 and 36.00, the obtained median could be considered reliable.

Skewness=0.1406

The distribution was silghtly positively skewed. The value of the skewness was 0.1406. Hence the distribution approached more or less the normal form.

The value of Kurtosis of the distribution was 0.2705 and the distribution was slightly platykurtic. That is the frequency distribution was more flat than the normal. This may be observed from the study of the frequency polygon shown in Figure 3.

Standard deviation=10.03

Quartile deviation= 7.43

Standard error of the standard deviation=0.36

'True' standard deviation=$10.03 \pm 0.36 \times 2.58$

=lies between 9.12 and 10.94 (at 0.01 level)

The standard deviation obtained was reliable as the true standard deviation was found within a narrow range of 9.12 and 10.94.

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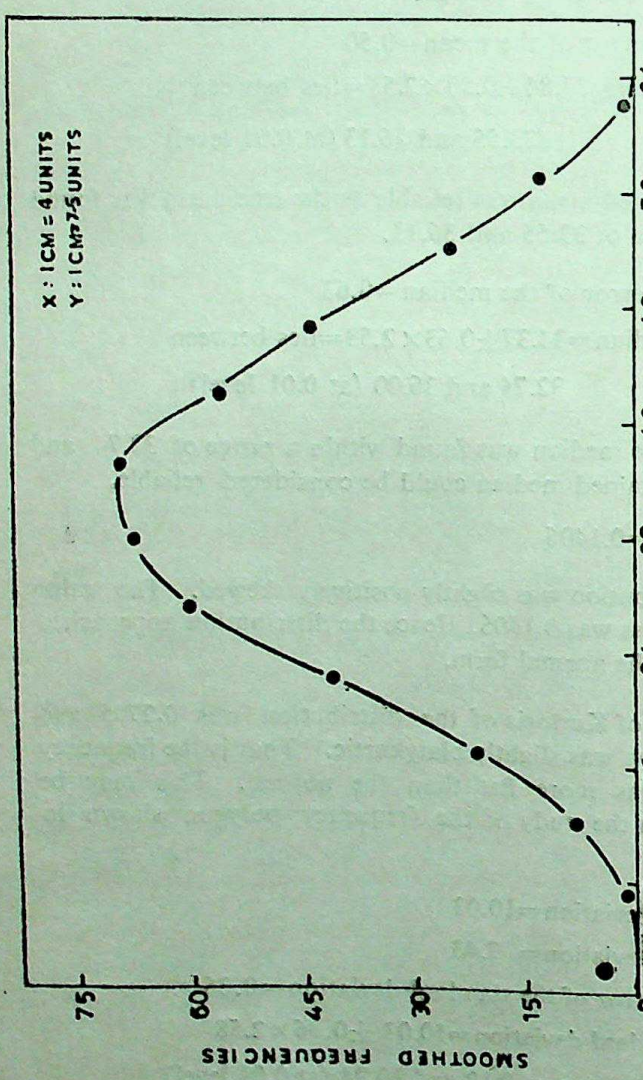

FIG. 3: A SMOOTHED FREQUENCY POLYGON FOR DISTRIBUTION OF SCORES OF THE N F E LEARNERS IN ARITHMETIC TEST

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TABLE 72
Frequency Distribution of Scores of NFE Learners in Problem Areas Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequency
4.5— 9.5	7	—	1.33	—	—
9.5—14.5	12	4	7.33	4	1.00
14.5—19.5	17	18	24.00	22	5.50
19.5—24.5	22	50	40.00	72	18.00
24.5—29.5	27	52	52.00	124	31.00
29.5—34.5	32	54	58.00	178	44.50
34.5—39.5	37	68	59.67	246	61.50
39.5—44.5	42	57	55.33	303	75.75
44.5—49.5	47	41	44.67	344	86.00
49.5—54.5	52	36	31.33	380	95.00
54.5—59.5	57	17	18.61	397	99.25
59.5—64.5	62	3	6.67	400	100.00
64.5—69.5	67	—	1.00	—	—

Mean =36.13
Median=36.11
Mode =36.09

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Since the value of the mean was slightly greater than the median and the mode, the distribution was considered to be slightly positively skewed.

Standard error of the mean=0.56

'True' mean=36.13±0.56×2.58=lies between

34.69 and 37.55 (at 0.01 level)

The true mean was found within the range of 34.69 and 37.55. Thus the obtained mean was considered reliable.

Standard error of the median=0.70

'True' median=36.11±0.70×2.58=lies between

34.32 and 37.90 (at 0.01 level)

The median obtained was reliable as the true median was found within a range of 34.32 and 37.90.

Skewness=0.0041

The distribution was slightly positively skewed. The value of skewness was 0.0041. This negligible degree of positive skewness showed that the distribution was nearly normal.

The value of Kurtosis of the distribution was 0.28 and the distribution was platykurtic. The same is also observed from the study of the frequency polygon shown in Figure 4.

Standard deviation=11.10

Quartile deviation= 8.52

Standard error of the standard deviation=0.39

'True' standard deviation=11.10±0.39×2.58

=lies between 10.08 and 12.12 (at 0.01 level)

As the true standard deviation was found to be within a range of 10.08 and 12.12, the obtained standard deviation was considered reliable.

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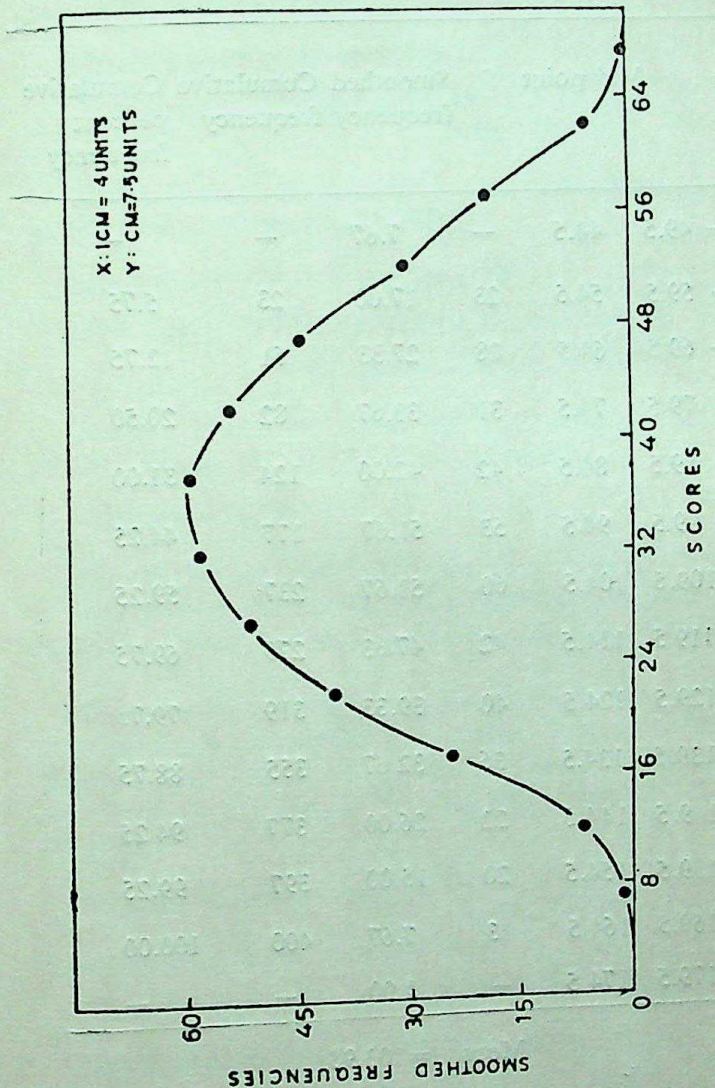

FIG. 4: A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE N F E LEARNERS IN PROBLEM AREAS TEST

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TABLE 73

Frequency Distribution of Scores of NFE Learners in Total Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequency
39.5— 49.5	44.5	—	7.67	—	—
49.5— 59.5	54.5	23	17.00	23	5.75
59.5— 69.5	64.5	28	27.33	51	12.75
69.5— 79.5	74.5	31	33.67	82	20.50
79.5— 89.5	84.5	42	42.00	124	31.00
89.5— 99.5	94.5	53	51.67	177	44.25
99.5—109.5	104.5	60	51.67	237	59.25
109.5—119.5	114.5	42	47.33	279	69.75
119.5—129.5	124.5	40	39.33	319	79.75
129.5—139.5	134.5	36	32.67	355	88.75
139.5—149.5	144.5	22	26.00	377	94.25
149.5—159.5	154.5	20	15.00	397	99.25
159.5—169.5	164.5	3	7.67	400	100.00
169.5—179.5	174.5	—	1.00	—	—

Mean =103.98

Median =103.33

Mode =102.04

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Since the value of the mean was slightly greater than that of the median and the mode, the distribution was considered to be slightly positively skewed.

Standard error of the mean = 1.37

'True' mean = $103.98 \pm 1.37 \times 2.58 = 100.43$ and 107.51 (at 0.01 level)

The obtained mean was reliable as the true mean was found within a range of 100.43 and 107.51.

Standard error of the median = 1.72

'True' median = $103.33 \pm 1.72 \times 2.58$ = lies between 98.86 and 107.77 (at 0.01 level)

The true median was found within a range of 98.86 and 107.77. So, the obtained median was reliable.

Skewness = 0.0706

The distribution was slightly positively skewed. The value of the skewness was 0.0706. This negligible degree of positive skewness showed that the distribution was of the normal type.

The value of Kurtosis of the distribution was 0.2656 and the distribution was slightly platykurtic. That is, the frequency distribution was more flat than the normal. This may be observed from a study of the frequency polygon shown in Figure 5.

Standard deviation = 27.41

Quartile deviation = 20.24

Standard error of the standard deviation = 0.97

'True' standard deviation = $27.41 \pm 0.97 \times 2.58$ = lies between 24.90 and 29.92 (at 0.01 level)

The obtained standard deviation was reliable as the true standard deviation was found within a range of 24.90 and 29.92.

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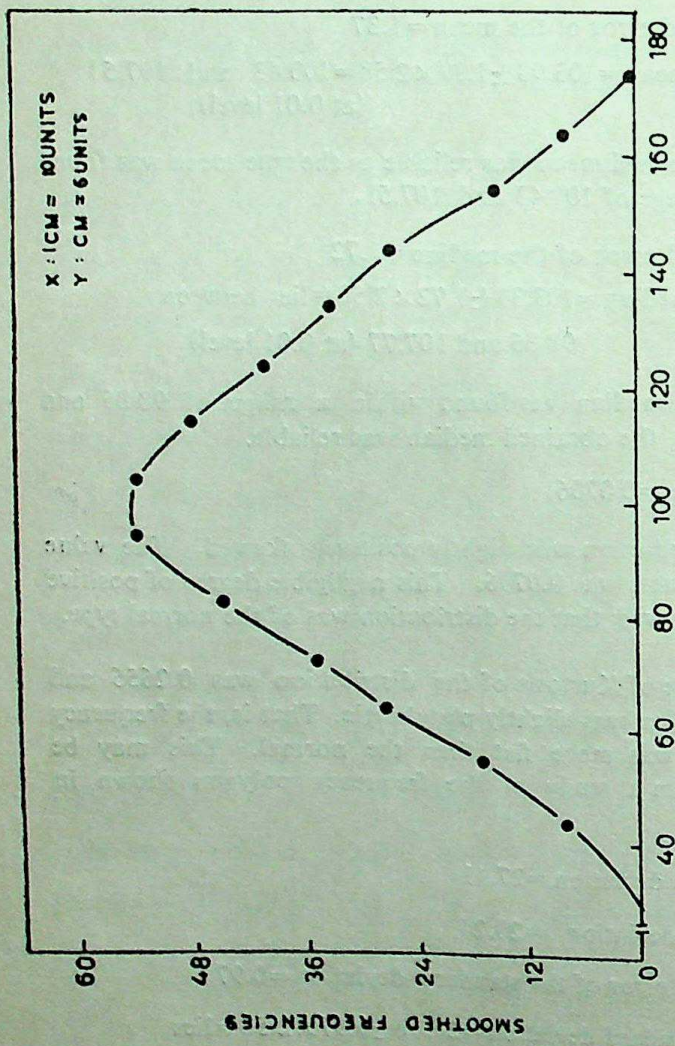

FIG.5: A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE NFE LEARNERS IN TOTAL TEST

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TABLE 74

Values of Mean, Median, Mode, Quartile Deviation and Standard Deviation of Achievement Test Scores of NFE Learners

Sl. No.	Description of the measure	Telugu test	Arithmetic test	Test in Problem Area	Total test
1	Mean	33.38	34.84	36.13	103.98
2	SE of mean	0.49	0.50	0.56	1.37
3	Range within which true mean falls	32.12 & 34.64	36.13 & 33.55	34.69 & 37.55	100.43 & 107.51
4	Median	32.81	34.37	36.11	103.33
5	SE of median	0.61	0.63	0.70	1.72
6	Range within which true median falls	31.23 & 34.39	32.74 & 36.00	34.32 & 37.90	98.86 & 107.77
7	Mode	31.68	33.43	36.09	102.04
8	Quartile deviation	7.20	7.43	8.52	20.24
9	SD	9.75	10.03	11.10	27.41
10	SE of SD	0.35	0.36	0.39	0.97
11	Range within which true SD falls	8.85 & 10.65	9.12 & 10.94	12.12 & 10.08	24.90 & 29.92

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TABLE 75

Skewness and Kurtosis of the Score Distribution of the Achievement Tests Taken by the NFE Learners

Sl. No.	Name of the test	Value of skewness	Type of skewness	Value of kurtosis	Type of kurtosis
1	Telugu test	0.174	Positive	0.278	Platykurtic*
2	Arithmetic test	0.1406	Positive	0.2705	Platykurtic*
3	Problem Areas test	0.0041	Positive	0.280	Platykurtic*
4	Total test	0.0706	Positive	0.2656	Platykurtic*

* If the value of Kurtosis is greater than 0.263, the distribution is platykurtic.

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6.4.2 Learning Outcomes—Formal Primary Schools Pupils

TABLE 76

Frequency Distribution of Scores of Formal Learners in Telugu Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative Percent frequency
14.5—19.5	17	—	2.66	—	—
19.5—24.5	22	8	6.33	8	4.00
24.5—29.5	27	11	10.33	19	9.50
29.5—34.6	32	12	13.33	31	15.50
34.5—39.5	37	17	21.66	48	24.00
39.5—44.5	42	36	31.33	84	42.00
44.5—49.5	47	41	38.00	125	62.50
49.5—54.5	52	37	32.00	162	81.00
54.5—59.5	57	18	22.66	180	90.00
59.5—64.5	62	13	12.66	193	96.50
64.5—69.5	67	7	6.66	200	100.00
69.5—74.5	72	—	2.33	—	—

Mean =45.76
Median=46.45
Mode =47.85

Since the value of the mean is less than that of the median and the mode, the distribution was considered to be negatively skewed.

Standard error of the mean=0.76

'True' mean=45.76±0.76×2.58=lies between 43.8 and 47.7 (at 0.01 level)

The true mean lies between 43.8 and 47.7

Standard error of the median=0.95

'True' median=46.45±0.95×2.58=lies between 44.01 and 48.89 (at 0.01 level)

As the true median was found within a range of 44.01 and 48.89, the obtained median could be considered reliable.

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Skewness = −0.196

The distribution was negatively skewed. The value of skewness was −0.196.

The value of Kurtosis of the distribution was 0.2216 and the distribution was slightly leptokurtic. This may also be observed from a study of the frequency polygon shown in Figure 6.

Standard deviation = 10.68

Quartile deviation = 6.56

Standard error of the standard deviation = 0.54

'True' standard deviation = $10.68 \pm 0.54 \times 2.58$

= lies between 9.3 and 12.06 (at 0.01 level)

The obtained standard deviation was reliable because the true standard deviation was found within a range of 9.3 and 12.06.

TABLE 77
Frequency Distribution of Scores of Formal Learners in Arithmetic Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequency
9.5—14.5	12	—	1.00	—	—
14.5—19.5	17	3	4.33	3	1.50
19.5—24.5	22	10	10.33	13	6.50
24.5—29.5	27	18	14.00	31	15.50
29.5—34.5	32	14	22.66	45	22.50
34.5—39.5	37	36	29.66	81	40.50
39.5—44.5	42	39	36.00	120	60.00
44.5—49.5	47	33	32.33	153	76.50
49.5—54.5	52	25	23.66	178	89.00
54.5—59.5	57	13	15.66	191	95.50
59.5—64.5	62	9	7.33	200	100.00
64.5—69.5	67	—	3.00	—	—

Mean = 41.63
Median = 41.94
Mode = 42.36

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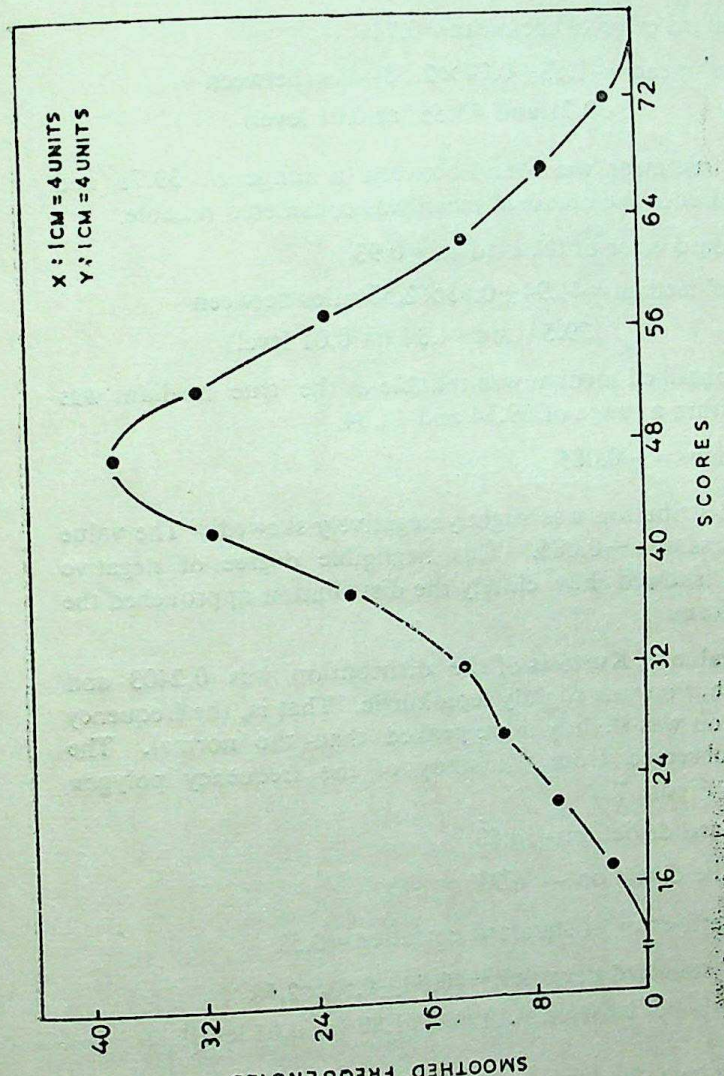

FIG. 6: A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE FORMAL LEARNERS IN TELUGU TEST

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Since the value of the mean was slightly less than that of the median and mode, the distribution was considered to be slightly negatively skewed.

Standard error of the mean=0.74

'True' mean=41.63±0.74×2.58=lies between
39.71 and 43.55 (at 0.01 level)

The true mean was found between a range of 39.71 and 43.55. Hence the obtained mean was considered reliable.

Standard error of the median=0.93

'True' median=41.94±0.93×2.58=lies between
39.54 and 44.34 (at 0.01 level)

The obtained median was reliable as the true median was found within a range of 39.54 and 44.34.

Skewness=−0.085

The distribution was slightly negatively skewed. The value of skewness was −0.085. This negligible degree of negative skewness showed how closely the distribution approached the normal form.

The value of Kurtosis of the distribution was 0.2403 and the distribution was slightly leptokurtic. That is, the frequency distribution was slightly more peaked than the normal. The same is observed from the study of the frequency polygon shown in Figure 7.

Standard deviation=10.50

Quartile deviation = 6.93

Standard error of standard deviation=0.53

'True' standard deviation=10.50±0.53×2.58
=lies between 9.13 and 11.87 (at 0.01 level)

As the true standard deviation was found to be within a narrow range of 9.13 and 11.87, the obtained standard deviation was considered reliable.

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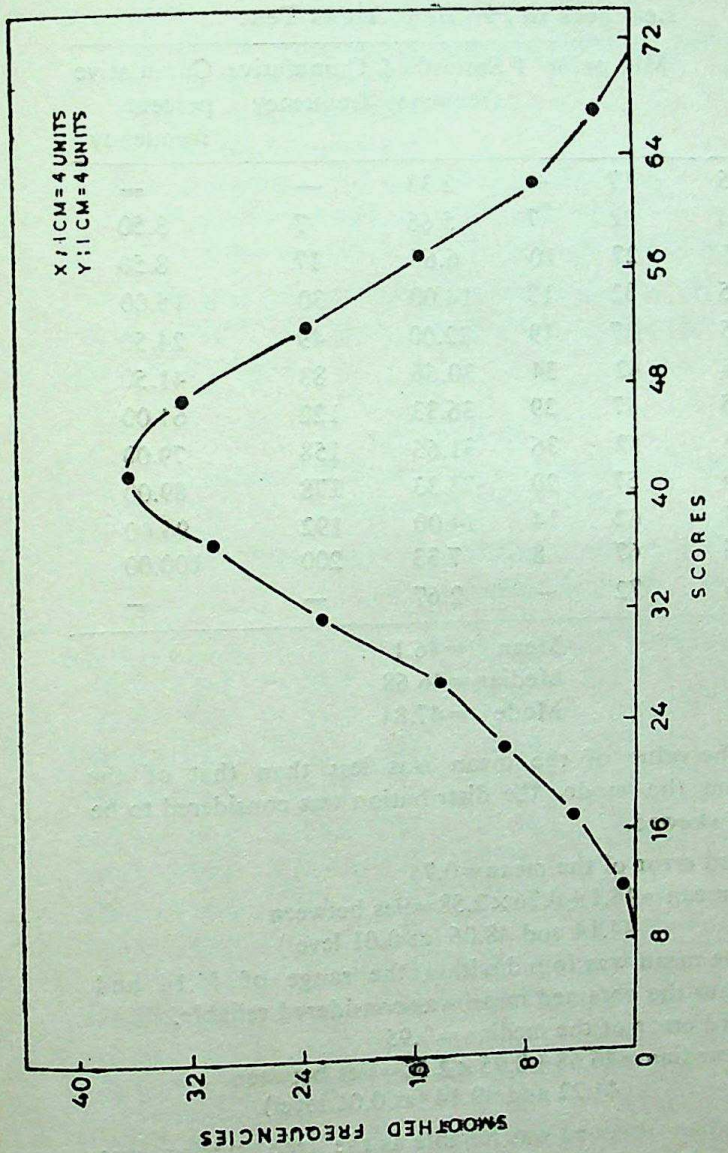

FIG. 7: A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE FORMAL LEARNERS IN ARITHMETIC TEST

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TABLE 78

Frequency Distribution of Scores of Formal Learners in Problem Areas Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequency
14.5—19.5	17	—	2.33	—	—
19.5—24.5	22	7	5.66	7	3.50
24.5—29.5	27	10	6.66	17	8.50
29.5—34.5	32	13	14.00	30	15.00
34.5—39.5	37	19	22.00	49	24.50
39.5—44.5	42	34	30.66	83	41.50
44.5—49.5	47	39	36.33	122	61.00
49.5—54.5	52	36	31.66	158	79.00
54.5—59.5	57	20	23.33	178	89.00
59.5—64.5	62	14	14.00	192	96.00
64.5—69.5	67	8	7.33	200	100.00
69.5—74.5	72	—	2.67	—	—

Mean =46.1
Median=46.68
Mode =47.84

Since the value of the mean was less than that of the median and the mode, the distribution was considered to be negatively skewed.

Standard error of the mean=0.76
'True' mean=46.1$\pm$0.76$\times$2.58=lies between
44.14 and 48.06 (at 0.01 level)

The true mean was found within the range of 44.14 and 48.06. Thus the obtained mean was considered reliable.

Standard error of the median=0.95
'True' median=46.68$\pm$0.95$\times$2.58=lies between
44.22 and 49.14 (at 0.01 level)

The median obtained was reliable as the true median was found within a range of 44.22 and 49.14.

Skewness = =0.162

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The distribution was negatively skewed. The value of skewness was −0.162.

The value of Kurtosis of the distribution was 0.232 and the distribution was slightly leptokurtic.

The same is also observed from the study of the frequency polygon shown in Figure 8.

Standard deviation = 10.76

Quartile deviation = 6.87

Standard error of the standard deviation = 0.54

'True' standard deviation = $10.76 \pm 0.54 \times 2.58$

= lies between 9.37 and 12.15 (at 0.01 level)

As the true standard deviation was found to be within a range of 9.37 and 12.15, the obtained standard deviation was considered reliable.

TABLE 79

Frequency Distribution of Scores of Formal Learners in Total Test

Limits	Mid point	f	Smoothed frequency	Cumulative frequency	Cumulative percent frequency
69.5— 79.5	74.5	—	2.33	—	—
79.5— 89.5	84.5	7	6.00	7	3.50
89.5— 99.5	94.5	11	10.66	18	9.00
99.5—109.5	104.5	14	15.66	32	16.00
109.5—119.5	114.5	22	21.66	54	27.00
119.5—129.5	124.5	29	29.33	83	41.50
129.5—139.5	134.5	37	31.33	120	60.00
139.5—149.5	144.5	28	29.33	148	74.00
149.5—159.5	154.5	23	22.33	171	85.50
159.5—169.5	164.5	16	17.33	187	93.50
169.5—179.5	174.5	13	9.66	200	100.00
179.5—189.5	184.5	—	4.33	—	—

Mean = 133.50

Median = 134.09

Mode = 135.28

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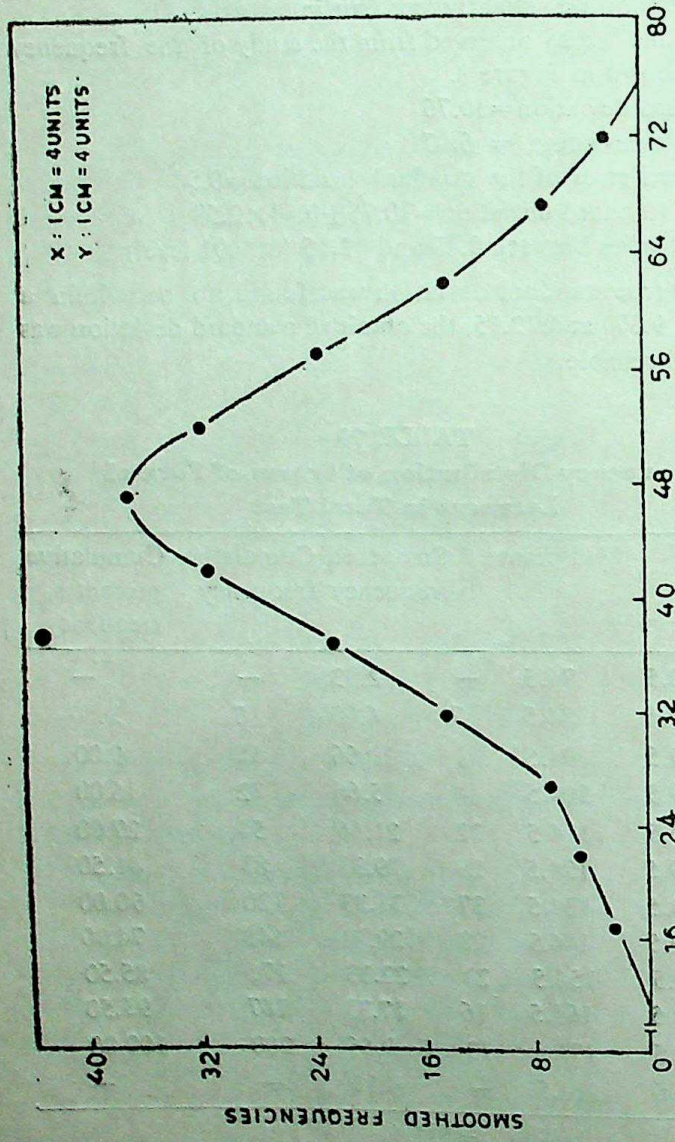

FIG. 8:A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE FORMAL LEARNERS IN PROBLEM AREAS TEST

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The value of the mean was less than that of the median and the mode. Hence the distribution was considered to be negatively skewed.

Standard error of the mean=1.63

'True' mean=133.50±1.63×2.58=lies between

129.29 and 137.71 (at 0.01 level)

The obtained mean was reliable as the true mean was found within a range of 129.29 and 137.71.

Standard error of the median=2.05

'True' median=134.09±2.05×2.58=lies between

128.81 and 139.37 (at 0.01 level)

The true median was found within a range of 128.81 and 139.37.

Skewness=−0.0766

The distribution was slightly negatively skewed. The value of skewness was −0.0766. Hence the distribution approached more or less the normal form.

The value of the Kurtosis of the distribution was 0.255 and the distribution was slightly leptokurtic. That is, the frequency distribution was more peaked than the normal. This may be observed from a study of the frequency polygon shown in Figure 9.

Standard deviation=23.10

Quartile deviation=16.34

Standard error of the standard deviation=1.16

'True' standard deviation=23.10±1.16×2.58

=lies between 20.11 and 26.09 (at 0.01 level)

The standard deviation obtained was reliable as the true standard deviation was found within a range of 20.11 and 26.09.

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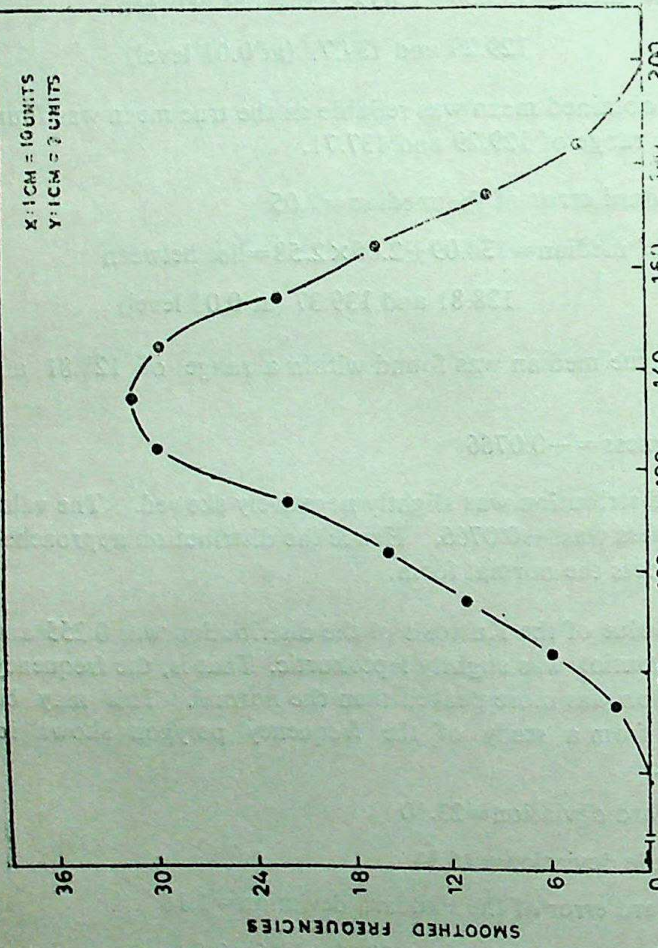

FIG. 9: A SMOOTHED FREQUENCY POLYGON FOR THE DISTRIBUTION OF SCORES OF THE FORMAL LEARNERS IN TOTAL TEST

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TABLE 80
Values of Mean, Median, Mode, Quartile Deviation and Standard Deviation of Achievement Test Scores of Formal Learners

Sl. No.	Description of the measure	Telugu test	Arithmetic test	Test in Problem Areas	Total test
1	Mean	45.75	41.64	46.10	133.50
2	SE of mean	0.76	0.74	0.76	1.63
3	Range within which true mean falls	43.80 & 47.70	39.71 & 43.55	44.14 & 48.06	129.29 & 137.71
4	Median	46.45	41.94	46.68	134.09
5	SE of median	0.95	0.93	0.95	2.05
6	Range within which true median falls	44.01 & 48.89	39.54 & 44.34	44.22 & 49.14	128.81 & 139.37
7	Mode	47.85	42.56	47.84	135.28
8	Quartile deviation	6.56	6.93	6.87	16.34
9	SD	10.68	10.50	10.76	23.10
10	SE of SD	0.54	0.53	0.54	1.16
11	Range within which true SD falls	9.30 & 12.06	9.13 & 11.87	9.37 & 12.15	20.11 & 26.09

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TABLE 81

Skewness and Kurtosis of the Score Distribution of the Achievement Tests taken by the Formal Learners

Sl. No.	Name of the test	Value of skewness	Type of skewness	Value of kurtosis	Type of kurtosis
1	Telugu test	—0.196	Negative	0.2216	Leptokurtic*
2	Arithmetic test	—0.085	Negative	0.2403	Leptokurtic*
3	Problem Areas test	—0.162	Negative	0.232	Leptokurtic*
4	Total test	—0.076	Negative	0.255	Leptokurtic*

* If the value of kurtosis is less than 0.263 the distribution is leptokurtic.

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Discussion

The mean scores of NFE learners in Telugu, Arithmetic and Problem Areas tests were 33.38, 34.84 and 36.13 respectively. The maximum score of each test was 70. The mean performance in percentage of marks was 47.68, 49.77 and 51.61 in Telugu, Arithmetic and Problem Areas tests respectively. Therefore, the performance in general in all the three tests was around 50 percent, which was neither high nor low. The highest mean score (36.13) was in Problem Areas test and lowest mean score (33.38) was in Telugu test. The difference between the highest and lowest mean scores was negligible.

The mean scores of formal learners in Telugu, Arithmetic and Problem Areas tests were 45.75, 41.63 and 46.10 respectively. The maximum score of each test was 70. The mean performance in percentages of marks was 65.36, 59.47 and 65.86 in Telugu, Arithmetic and Problem Areas tests respectively. Therefore, the performance in general in all the three tests was more than average. The highest mean score (46.10) was in Proplem Areas test and the lowest mean score (41.63) was in Arithmetic. The difference between the highest and lowest mean scores was 4.46.

The mean achievement scores in all the three tests for formal primary school pupils were higher than those of the NFE learners. The distribution of the scores of the formal and NFE learners in different tests is approximately normal.

SECTION V

6.5 INFLUENCE OF THE INDEPENDENT VARIABLES ON THE ACADEMIC ACHIEVEMENT

One of the objectives of the investigation was to study the influence of some selected variables pertaining to the learners, instructors and the NFE centres on the academic achievement of the NFE learners. In all, 14 variables pertaining to the learners, instructors and NFE centres were included in the study and they were treated as independent variables.

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The independent variables included in the study belonged to three broad categories as shown below:

(A) Variables pertaining to the learners: (1) Sex, (2) Age, (3) Caste, (4) Occupation of parents, (5) Size of land holding of the parents, (6) Development of the locality, (7) Income of parents, (8) Academic achievement motivation, and (9) Category of drop-out/non-starter (experience of prior schooling).

(B) Variables relating to the instructors: (1) Professional qualifications, (2) Teaching experience, and (3) Attitude towards NFE.

(C) Variables relating to the NFE centres : (1) Physical facilities, and (2) Teaching-learning materials.

The four areas of academic achievement included in the dependent category of variables were (1) Achievement in Telugu test, (2) Achievement in Arithmetic test, (3) Achievement in Problem Areas test, and (4) Total achievement.

The details of the analysis carried out were as follows. The influence of each one of the variables pertaining to the learner, instructor and NFE centre on the achievement in Telugu test, Arithmetic test, Problem Areas test and Total achievement was examined by means of the 't' test and analysis of variance. Critical ratios and 'F' ratios were computed.

6.5.1 Variables Pertaining to the Learners—Academic Achievement

Hypothesis 23

There is no significant influence of variables pertaining to learners—(1) sex (2) age (3) caste (4) parents' occupation (5) parents' size of land holding (6) development of locality (7) parents' income (8) academic achievement motivation and (9) category of drop-out/non-starter (experience of prior schooling) on each one of the achievement areas—Telugu, Arithmetic, Problem Areas tests and Total Academic Achievement.

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To test the hypothesis the mean academic achievement scores of the NFE learners were tested for significance by employing 't' test and analysis of variance. Testing was done separately for each of the variables as described in the following pages.

Sex

In the Personal Data Sheet meant for the NFE learners, an item on the information of 'sex' to which the learner belonged was sought for. The sex as written down in that item was later classified into two categories namely boys and girls.

The mean achievement scores and SDs for Telugu, Arithmetic, Problem Areas tests and Total test (all the three achievement test marks combined) for the two categories—boys and girls were computed as shown in Table 82.

TABLE 82

The Influence of Sex on the Academic Achievement of NFE Learners

Test	Variable	N	Mean	SD	CR	Level of significance
Telugu Test	Boys	245	34.27	9.24	2.39	0.05
	Girls	155	31.90	2.85		
Arithmetic Test	Boys	245	35.97	9.43	3.61	0.01
	Girls	155	32.25	10.48		
Problem Areas Test	Boys	245	37.40	10.59	3.34	0.01
	Girls	155	33.59	11.36		
Total Test	Boys	245	107.61	26.02	3.46	0.01
	Girls	155	97.57	29.62		

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As the calculated critical ratio was less than the table value for 398 df at 0.01 level of probability, the null hypothesis that the sex had no significant influence on the academic achievement in Telugu test was accepted. The obtained critical ratios for Arithmetic, Problem Areas and Total tests were greater than the table value beyond 0.01 level (vide Table 82). Therefore, the null hypothesis that the sex had no significant influence on the academic achievement in Arithmetic, Problem Areas and Total tests was rejected. It may be finally concluded that the sex had no significant influence on the academic achievement in Telgu test but it had significant influence on the academic achievement in Arithmetic, Problem Areas and Total test.

Age

The NFE learners under study were divided into two age groups. They were 9-11 years age group and 12-14 years age group. The number of NFE learners in these two age groups were 103 and 297 respectively.

The mean achievement scores and SDs for Telugu, Arithmetic, Problem Areas and Total tests for the two age groups were computed as shown in Table 83.

TABLE 83

The Influence of Age on the Academic Achievement of NFE Learners

Test	Variable	N	Mean	SD	CR	Level of significance
Telugu Test	12-14 years	297	34.78	9.59	5.41	0.01
	9-11 years	103	29.21	8.80		
Arithmetic Test	12-14 years	297	35.87	9.66	4.57	0.01
	9-11 years	103	30.57	10.28		
Problem Areas Test	12-14 years	297	37.67	10.77	5.69	0.01
	9-11 years	103	30.84	10.43		
Total Test	12-14 years	297	108.28	29.06	5.60	0.01
	9-11 years	103	89.90	28.59		

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It is evident from Table 83 that the obtained 't' values were significant beyond 0.01 level of probability. Hence the null hypothesis that the age had no significant influence on the academic achievement in Telugu, Arithmetic, Problem Areas and Total tests of NFE learners was rejected. In other words the age had significant influence on all the four areas of academic performance of NFE learners.

Caste

In the personal data sheet meant for the NFE learners, information of 'caste' to which the student belonged was sought for. All castes were broadly classified into three categories namely (1) scheduled castes/scheduled tribes (2) backward castes and (3) other castes.

The mean achievement scores, SDs, sum of squares, mean square for all the four performance areas for the three categories of castes were computed as shown in ANOVA Table 84.

The results of ANOVA from Table 84 indicated that the calculated 'F' ratios were not significant at 0.01 level. Hence the null hypothesis 'the caste has no significant influence on the academic achievement of NFE learners' was retained. Therefore, it was concluded that the caste was not an influencing factor on the academic achievement of the NFE learners. Though the 'F' ratio in the case of Arithmetic test was significant at 0.05 level, it could not reach the level of significance at 0.01 level. It may be concluded that the caste had some influence on the achievement in arithmetic test, but it was not significant.

Occupation of Parent

In the Personal Data Sheet meant for NFE learners information on an item—father's occupation was sought for. Different occupations were classified into three broad categories (1) labourers (2) agriculturiests and (3) caste occupation and others.

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TABLE 84
The Influence of Caste on the Academic Achievement of NFE Learners

	Group	SC/ST	BC	OC		
	Number of learners	90	191	119		
	Means	33.04	33.07	34.03		
	S.D.	9.41	8.97	10.51		
Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	78.63	39.11	0.43	NS
	Within groups	397	36212.69	91.22		
	Total	399	36291.31			

	Group	SC/ST	BC	OC		
	Number of learners	90	191	119		
	Means	32.28	35.82	34.17		
	S.D.	9.59	9.81	10.39		
Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	791.00	395.50	4.00	0.05
	Within groups	397	39210.62	98.77		
	Total	399	40001.62			

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Table 84 Contd.

	Group	SC/ST	BC	OC
	Number of learners	90	191	119
	Means	34.06	36.96	35.71
	S.D.	10.37	11.01	11.42

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	524.06	262.03	2.16	NS
	Within groups	397	47993.12	120.89		
	Total	399	48517.19			

	Group	SC/ST	BC	OC
	Number of learners	90	191	119
	Means	99.38	105.75	103.76
	S.D.	27.03	26.68	30.14

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	2485.00	1242.50	1.60	NS
	Within groups	397	307507.00	774.58		
	Total	399	309992.00			

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The mean achievement scores, SDs, sum of squares, mean square for the children belonging to the three categories of occupations were computed as shown in ANOVA Table 85.

As the 'F' ratios were significant at 0.01 level, the null hypothesis 'parent's occupation has no significant influence on the academic achievement of NFE learners' was rejected. It was concluded that there was significant influence of parent's occupation on all the four areas of academic achievement.

Size of land holding of parent

The information on father's size of land holding was sought from an item given in Student's Personal Data Sheet. Depending on the information provided, the size of parent's land holding was divided into no land, less land (possession of land upto 5 standard acres) and more land (possession of more than 5 standard acres).

The mean achievement scores, SDs, sum of squares, mean square for the children belonging to the three categories namely no land, less land and more land were computed as shown in Table 86.

The obtained 'F' ratios in the case of Telugu, Arithmetic, Problem Areas and Total test were significant beyond 0.01 level of probability. In other words parent's size of land holding had significant influence on the achievement of NFE learners in Telugu, Arithmetic, Problem Areas and Total tests. The null hypothesis 'parent's size of land holding has no significant influence on the academic achievement of NFE learners' was not accepted. It was concluded that there was significant influence of parent's size of land holding on all the four performance areas.

Development of locality

The information on the development of locality was gathered with the help of Development of Locality Scale meant for teachers. Scores were assigned to the items in the scale appropriately. The development of locality scores of the subjects ranged from 4 to 15. They were classified by taking into

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TABLE 85

The Influence of Parent's Occupation on the Academic Achievement of NFE Learners

	Group	Labourers	Agriculturists	Caste profession and others
	Number of learners	144	192	64
	Mean	32.08	33.12	36.92
	S.D.	9.29	9.48	9.52

Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1060.19	530.09	5.97	0.01
	Within groups	397	35231.12	88.74		
	Total	399	36291.31			

	Group	Labourers	Agriculturists	Caste profession and others
	Number of learners	144	192	64
	Means	33.28	34.29	38.08
	S.D.	9.86	9.87	10.12

Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1042.44	521.22	5.31	0.01
	Within groups	397	38959.19	98.13		
	Total	399	40001.63			

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Table 85 Contd.

	Group	Labourers	Agriculturists	Caste profession and others
	Number of learners	144	192	64
	Mean	33.78	36.32	39.61
	S.D.	10.64	11.22	10.33

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1557.94	778.97	6.58	0.01
	Within groups	397	46959.25	118.29		
	Total	399	48517.19			

	Group	Labourers	Agriculturists	Caste profession and others
	Number of learners	144	192	64
	Means	99.07	103.64	114.45
	S.D.	27.35	27.72	26.96

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	10489.00	5244.50	6.95	0.01
	Within groups	397	299503.00	754.42		
	Total	399	309992.00			

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TABLE 86

The Influence of Parent's Size of Land Holding on the Academic Achievement of the NFE Learners

	Group	No land	Less land	More land
	Number of learners	200	124	76
	Means	32.30	33.52	35.86
	S.D.	9.54	9.85	8.60

Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	860.94	430.47	4.82	0.01
	Within groups	397	35430.37	89.25		
	Total	399	36291.31			

	Group	No land	Less land	More land
	Number of learners	200	124	76
	Means	33.75	32.95	39.17
	S.D.	9.96	8.99	10.49

Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	2067.69	1033.84	10.81	0.01
	Within groups	397	37933.94	95.55		
	Total	399	40001.63			

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Table 86 Contd.

	Group	No land	Less land	More land
	Number of learners	200	124	76
	Means	35.04	34.12	41.25
	S.D.	10.92	10.39	10.84

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	2717.00	1358.50	11.78	0.01
	Within groups	397	45800.19	115.37		
	Total	399	48517.19			

	Group	No land	Less land	More land
	Number of learners	200	124	76
	Means	101.03	100.39	116.28
	S.D.	27.70	26.80	26.86

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	14813.00	7406.50	9.96	0.01
	Within groups	397	295179.00	743.52		
	Total	399	309992.00			

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account the mean and SD of the whole distribution. Learners with development of locality scores 9.86 and above, i.e., $\frac{1}{2}\sigma$ above the mean of the distribution (8.5+1.36) were considered as well development locality group, learners with scores of 7.14 and less than 7.14, i.e., $\frac{1}{2}\sigma$ less than the mean (8.5—1.36) were considered as poorly developed locality group and the rest of the learners, i. e., with 7.15 to 9.85 scores were considered as somewhat developed locality group. There were 170, 140 and 90 NFE learners belonging to the poorly developed, some what developed and well developed localities respectively.

The mean scores, SDs, sum of squares, mean square for children belonging to all the three categories of development of locality were computed as shown in ANOVA Table 87.

The obtained 'F' ratios were not significant in the case of Telugu test and Problem Areas test at 0.01 level but they were significant in the case of Arithmetic test and Total test beyond 0.01 level. The null hypothesis 'the level of development of locality has no significant influence on the academic achievement of NFE learners' was not accepted in the case of their achievement in Arithmetic test and Total test but the null hypothesis was true with regard to the achievement of NFE learners in Telugu and Problem Areas tests.

Income of Parents

The information on the average income of family per year was sought from an item given in Student's Personal Data Sheet. The annual income of the family was classified into three categories—(1) low income (below Rs. 2,000/-) (2) middle income (Rs. 2,001/- to 6,000) and (3) Upper income (above Rs. 6,000/-). 198, 97 and 105 NFE learners were there in low, middle and upper income groups respectively.

The mean scores, SDs, sum of squares, mean squares for all the 3 categories of income groups were computed as shown in ANOVA Table 88.

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TABLE 87

The Influence of Development of Locality on the Academic Achievement of NFE Learners

	Group	Poorly developed locality	Some what developed locality	Well developed locality
	Number of learners	170	140	90
	Means	31.50	34.09	34.83
	S.D.	10.00	8.87	9.29

Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	771.31	385.66	4.31	0.05
	Within groups	397	35520.00	89.47		
	Total	399	36291.31			

	Group	Poorly developed locality	Some what developed locality	Well developed locality
	Number of learners	170	140	90
	Means	32.56	34.62	37.42
	S.D.	10.22	10.26	8.50

Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1295.31	647.66	6.64	0.01
	Within groups	397	38706.31	97.49		
	Total	399	40001.62			

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Table 87 Contd.

	Group	Poorly developed locality	Some what developed locality	Well developed locality
	Number of learners	170	140	90
	Means	34.41	36.47	37.29
	S.D.	11.62	10.72	10.16

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	540.50	270.25	2.23	NS
	Within groups	397	47976.62	120.85		
	Total	399	48517.19			

	Group	Poorly developed locality	Some what developed locality	Well developed locality
	Number of learners	170	140	90
	Means	98.21	105.25	109.43
	S.D.	29.47	26.92	24.85

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	7589.00	3794.50	4.98	0.01
	Within groups	397	302403.00	761.72		
	Total	399	309992.00			

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TABLE 88
The Influence of Income of Parents on the Academic Achievement of NFE Learners

	Group	Low income	Middle income	Upper income
	Number of learners	198	97	105
	Means	31.89	32.08	37.29
	S.D.	9.68	8.43	9.19

Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	2205.00	1102.50	12.84	0.01
	Within groups	397	34086.31	85.86		
	Total	399	36291.31			

	Group	Low income	Middle income	Upper income
	Number of learners	198	97	105
	Means	32.70	33.19	39.22
	S.D.	9.48	9.97	9.60

Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	3142.94	1571.47	16.92	0.01
	Within groups	397	36858.69	92.84		
	Total	399	40001.62			

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Table 88 Contd.

	Group	Low income	Middle income	Upper income
	Number of learners	198	97	105
	Means	33.70	34.36	41.59
	S.D.	10.59	10.68	10.23

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	4586.00	2293.00	20.72	0.01
	Within groups	397	43931.19	110.66		
	Total	399	48517.19			

	Group	Low income	Middle income	Upper income
	Number of learners	198	97	105
	Means	98.16	99.43	118.19
	S.D.	27.26	26.78	24.97

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	29898.00	14949.00	21.19	0.01
	Within groups	397	280094.00	705.53		
	Total	399	309992.00			

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As the 'F' ratios were significant beyond 0.01 level the null hypothesis 'income of parents has no significant influence on academic achievement of NFE learners' was rejected. It was concluded that there was significant influence of the income of parents on the academic achievement of NFE learners in all the tests.

Academic achievement motivation

The academic motivation was measured by administering the tool 'Academic Achievement Motivation Inventory' to each NFE learner in the sample. Scores were assigned to the items in the inventory. The academic achievement motivation scores of the subjects ranged from 4 to 16.

The academic achievement motivation scores were classified by taking into account the mean and SD of the whole distribution. Children with academic achievement motivation scores 13.35 and above i.e., $\frac{1}{2}\sigma$ above the mean of the distribution (11.87+1.48) were considered as higher motivation group. Children with scores of 10.39 and less than 10.39 i.e., $\frac{1}{2}\sigma$ less than the mean (11. 87−1.48) were considered as low motivation group and the rest i.e., with 10.40 to 13.34 scores were considered as average motivation group. 146 NFE learners were in low academic achievement motivation group, 127 NFE learners were in average academic achievement motivation group and 127 NFE learners were in high achievement motivation group.

The mean achievement scores, SDs, sum of squares, mean square for all the tests for these three categories of NFE learners were computed as shown in ANOVA Table 89.

The results of the analysis of variance indicated that there was significant influence of academic achievement motivation on the academic achievement of NFE learners in all the tests. The 'F' values were significant beyond 0.01 level for 2 and 397 df. Hence the hypothesis that there would not be significant influence of academic achievement motivation on academic achievement of NFE learners was rejected.

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TABLE 89

The Influence of Academic Achievement Motivation on the Academic Achievement of NFE Learners

	Group	Low academic achievement motivation group	Average academic achievement motivation group	High academic achievement motivation group
	Number of learners	146	127	127
	Means	28.88	29.68	42.16
	S.D.	8.18	6.61	7.23

Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	14472.00	7236.00	131.65	0.01
	Within groups	397	21819.31	54.96		
	Total	399	36291.31			

	Group	Low academic achievement motivation	Average academic achievement motivation	High academic achievement motivation
	Number of learners	146	127	127
	Means	29.75	30.43	44.14
	S.D.	8.41	7.02	7.08

Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	17213.50	8606.75	149.94	0.01
	Within groups	397	22788.12	57.40		
	Total	399	40001.62			

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Table 89 Contd.

	Group	Low academic achievement motivation	Average academic achievement motivation	High academic achievement motivation
	Number of learners	146	127	127
	Means	30.84	31.09	46.64
	S.D.	8.99	8.02	7.66

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	21329.56	10664.78	155.72	0.01
	Within groups	397	27187.62	68.48		
	Total	399	48517.19			

	Group	Low academic achievement motivation	Average academic achievement motivation	High academic achievement motivation
	Number of learners	146	127	127
	Means	89.33	91.02	133.00
	S.D.	22.77	17.94	16.53

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	159670.00	79835.00	210.84	0.01
	Within groups	397	150322.00	378.64		
	Total	399	309992.00			

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Drop-out/non-starter (*Experience of prior schooling*)

The information whether the NFE learner was a drop-out from formal primary school or a non-starter was sought from an item given in 'Student's Personal Data Sheet'. Depending on the information provided, the NFE learners were classified into drop-outs and non-starters. In the sample there were 195 drop-outs and 205 non-starters.

The mean achievement scores and SDs for all the tests for drop-outs and non-starters were computed as shown in Table 90.

TABLE 90

The Influence of Category of Drop-out/Non-starter on the Academic Achievement of NFE Learners

Test	Variable	N	Mean	SD	CR	Level of significance
Telugu Test	Drop-outs	195	38.03	9.01	10.73	0.01
	Non-starters	205	28.91	8.03		
Arithmetic Test	Drop-outs	195	39.73	9.39	11.52	0.01
	Non-starters	205	29.59	8.10		
Problem Areas Test	Drop-outs	195	41.47	10.08	12.00	0.01
	Non-starters	205	30.37	8.86		
Total Test	Drop-outs	195	119.48	24.71	13.20	0.01
	Non-starters	205	88.73	21.79		

As it is evident from Table 90, the obtained 't' values were significant beyond 0.01 level of probability. This indicates that there was significant influence of the category of learner, drop-out/non-starter, that is experience of prior schooling on the academic achievement of NFE learners. In view of the results obtained, the null hypothesis that the category of drop-out/non-starter had no significant influence on the academic achievement of NFE learners was not accepted.

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It was observed from Table 90 that the mean achievement scores of the drop-outs in Telugu, Arithmetic, Problem Areas tests and Total test were much higher than their counterparts, non-starters. It is quite natural to expect the mean achievement scores of drop-outs to be higher than the mean achievement scores of non-starters because the drop-outs were exposed to the knowledge in Telugu, Arithmetic and Problem Areas for some time in the formal primary schools. Their exposure might have to some extent helped them to secure more score than the non-starters who had never gone to the primary schools.

6.5.2 Variables Pertaining to Instructors—Academic Achievement

Hypothesis 24

There is no significant influence of variables pertaining to the instructors—(1) professional qualification, (2) teaching experience, and (3) attitude towards NFE on each one of the achievement areas —Telugu, Arithmetic, Problem Areas tests and Total Academic Achievement.

To test the hypothesis the mean academic achievement scores of the NFE learners were tested for significance by using 't' test and ANOVA. Testing was done separately for each of the variables as described in the following pages.

Professional Qualifications

The information on the professional qualifications of the instructors was obtained with the help of item No.11 in the Questionnaire for Instructors. Some instructors did not possess any professional qualifications but some of them had professional qualifications like higher grade, secondary grade, B.Ed., and M.Ed. The instructors under study were divided into two categories—(1) teachers with some professional qualifications and (2) teachers without any professional qualifications. There were 27 instructors with professional qualifications and 53 instructors without any professional qualifications. 135 NFE learners in the sample were taught by teachers with professional qualifications. 265 NFE learners in the sample were taught by instructors without professional qualifications.

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TABLE 91
The Influence of Professional Qualifications of Instructors on the Academic Achievement of NFE Learners

Test	Variable	N	Mean	SD	CR	Level of significance
Telugu Test	With professional qualifications	135	36.45	8.70	4.87	0.01
	Without professional qualifications	265	31.82	9.57		
Arithmetic Test	With professional qualifications	135	39.83	8.50	8.42	0.01
	Without professional qualifications	265	31.83	9.76		
Problem Areas Test	With professional qualifications	135	40.78	9.30	7.13	0.01
	Without professional qualifications	265	33.37	10.94		
Total Test	With professional qualifications	135	116.89	27.28	6.86	0.01
	Without professional qualifications	265	96.66	29.11		

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Gandhi Memorial College Of Education Bantalab Jammu

The mean achievement scores and SDs in all the tests for the NFE learners taught by instructors with professional qualifications and without professional qualifications were computed as shown in Table 91.

As the values of critical ratios were higher than table values for 398 df beyond 0.01 level of probability, the null hypothesis that the instructors' professional qualifications had no significant influence on the academic achievement of NFE learners was rejected. It was concluded that the professional qualifications of instructors could influence all the performance areas of academic achievement.

An observation of Table 91 shows that the values of mean achievement scores of the NFE learners taught by the instructors with professional qualifications in all the tests were higher than the mean achievement scores of the NFE learners taught by instructors without professional qualifications. It would indirectly suggest that the NFE learners taught by the instructors with professional qualifications could perform better than their counterparts—learners taught by the instructors without any professional qualifications.

Teaching experience

The information of teaching experience of the instructors was gathered with the help of item No.13 of the Questionnaire for Instructors. The teaching experience of the instructor in pre-primary, primary, secondary schools, college, agriculture/ technical institution, adult education and NFE was considered.

The instructors were classified into less experienced (upto 3 years teaching experience) and more experienced (more than 3 years of teaching experience). There were 50 instructors with more teaching experience and 30 instructors with less teaching experience. There were 250 NFE learners taught by instructors with more teaching experience and 150 NFE learners taught by instructors with less teaching experience.

The mean academic achievement scores and SDs in all the tests for the NFE learners taught by instructors with more teaching experience and less teaching experience were computed as shown in Table 92.

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TABLE 92

The Influence of Teaching Experience of the Instructors on Academic Achievement of NFE Learners

Test	Variable	N	Mean	SD	CR	Level of significance
Telugu Test	More teaching experience	250	35.17	9.77	5.16	0.01
	Less teaching experience	150	30.42	8.41		
Arithmetic Test	More teaching experience	250	36.76	9.76	6.06	0.01
	Less teaching experience	150	30.82	9.37		
Problem Areas Test	More teaching experience	250	38.10	10.56	6.96	0.01
	Less teaching experience	150	30.79	9.95		
Total Test	More teaching experience	250	109.89	31.21	5.66	0.01
	Less teaching experience	150	93.47	26.10		

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The calculated CR values in the case of all the tests were higher than the table values for 398 df beyond 0.01 level of probability. Hence the null hypothesis that the teaching experience of the instructors had no significant influence on the academic achievement of NFE learners was not accepted. It was concluded that the number of years of teaching experience of instructors had significant influence on all the performance areas. It could also be observed from the table that the mean achievement score of NFE learners taught by instructors with more teaching experience was higher than the mean achievement score of NFE learners taught by instructors with less teaching experience.

Attitude of instructors towards NFE

The attitude of instructors towards NFE was measured by administering an attitude scale developed by the researcher to each instructor in the sample. The attitude scores of the instructors ranged from 50 to 140. The attitude scores were classified by taking into account the mean and SD of the whole distribution. The instructors with attitude scores 101.75 and above i.e., $\frac{1}{2}\sigma$ above the mean of the distribution (95.25+6.5) were considered as high attitude group, instructors with scores of 88.75 and less than 88.75 i.e., $\frac{1}{2}\sigma$ less than the mean (95.25−6.5) were considered as low attitude group and the rest i.e., with 88.76 to 101.74 scores were considered middle attitude group. The number of instructors fell in each of these categories were 26, 22 and 32 respectively. The NFE learners taught by instructors with high attitude were 130, middle attitude were 160 and low attitude were 110.

The mean achievement scores, SDs, sum of squares, mean square were computed in all the tests for the NFE learners taught by the three categories of teachers with high, middle and low attitude scores were computed as given in ANOVA Table 93.

It could be seen from Table 93 that the calculated 'F' ratios were significant at 0.01 level of significance. Hence the null hypothesis 'the attitude of the instructors towards NFE has no significant influence on the academic achievement of NFE

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TABLE 93
The Influence of Attitude of Instructors on Academic Achievement of NFE Learners

	Group	Low attitude score	Medium attitude score	High attitude score		
	Number of learners	110	160	130		
	Means	31.45	32.33	36.22		
	S.D.	9.86	8.98	9.33		
Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1638.00	819.00	9.38	0.01
	Within groups	397	34653.31	87.29		
	Total	399	36291.31			

	Group	Low attitude score	Medium attitude score	High attitude score		
	Number of learners	110	160	130		
	Means	32.35	33.52	37.63		
	S.D.	10.89	9.38	9.30		
Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1938.50	969.25	10.10	0.01
	Within groups	397	38063.12	95.88		
	Total	399	40001.62			

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Table 93 Contd.

	Group	Low attitude score	Medium attitude score	High attitude score
	Number of learners	110	160	130
	Means	34.48	34.86	38.48
	S.D.	11.48	11.19	10.03

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1263.50	631.75	5.30	0.01
	Within groups	397	47253.69	119.03		
	Total	399	48517.19			

	Group	Low attitude score	Medium attitude score	High attitude score
	Number of learners	110	160	130
	Means	98.18	100.71	112.13
	S.D.	29.91	26.69	25.69

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	14024.00	7012.00	9.40	0.01
	Within groups	397	295968.00	745.51		
	Total	399	309992.00			

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learners' was not accepted. Therefore, it was concluded that the attitude of instructors towards NFE could influence significantly the academic achievement of the NFE learners in all performance areas. Another trend that could be observed from the table was that higher the attitude of the instructors towards NFE, more was the achievement of the NFE learners.

6.5.3 Variables Relating to the NFE Centres—Academic Achievement

Hypothesis 25

There is no significant influence of variables relating to the NFE centre—(1) physical facilities and (2) teaching-learning materials on each one of the achievement areas—Telugu, Airthmetic, Problem Areas tests and Total Academic Achievement.

To test the hypothesis the mean academic achievement scores of the NFE learners were tested for significance by employing ANOVA. Testing was done separately for each of the variables as described in the following pages.

Physical facilities in NFE centres

The information on the physical facilities available in the concerned NFE centres was obtained from item II which consisted of 13 sub-items in the Questionnaire for Instructors. The items in the questionnaire were assigned proper scores. The physical facilities scores of NFE centres ranged from 4 to 16. The NFE centres with different scores of physical facilities were classified by taking into account the mean and SD of the whole distribution. NFE centres with physical facility scores 11.1 and above i. e., $\frac{1}{2}\sigma$ above the mean of the distribution (9.75+1.35) were classified as centres with good physical facilities, centres with scores 8.4 and less than 8.4 were classified as centres with poor physical facilities and rest of the centres with scores 8.5 to 11 were classified as centres with average physical facilities. The centres fell in each of these

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categories were 30, 23 and 27 respectively. Number of learners found in NFE centres with good physical facilities were 150, with average physical facilities were 135 and with poor physical facilities were 115.

The mean achievement scores in all the tests, SDs, sum of squares, mean square for the categories of students with good, average and poor physical facilities were computed as shown in ANOVA Table 94.

It could be observed from Table 94 that the calculated 'F' ratios were significant for Arithmetic and Problem Areas tests at 0.01 level. The 'F' ratios were not significant in the case of Telugu test and Total test. Therefore, the null hypothesis 'the physical facilities in NFE centres have no significant influence on the academic achievement of NFE learners' was not accepted in the case of their achievement in Arithmetic and Problem Areas tests. But the null hypothesis was true with regard to the achievement of NFE learners in Telugu and Total tests.

Teaching-learning materials in NFE centres

The data on the availability of teaching-learning materials in the respective NFE centres was gathered from item III which consisted of 15 sub-items in the Questionnaire for Instructors. The items in the questionnaire were assigned proper scores. The teaching-learning materials scores of NFE centres ranged from 9 to 18. The NFE centres with different scores of teaching-learning materials were classified by taking into account the mean and SD of the whole distribution. NFE centres with teaching-learning materials scores 14.39 and above, i.e., $\frac{1}{2}\sigma$ above the mean of the distribution were classified as centres with more teaching-learning materials, centres with scores 11.15 and less than 11.15 were classified as centres with poor teaching-learning materials and rest of the centres with scores

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TABLE 94

The Influence of Availability of Physical Facilities in NFE Centres on the Academic Achievement of NFE Learners

	Group	Poor physical facilities	Average physical facilities	Good physical facilities
	Number of learners	115	135	150
	Means	32.22	34.25	33.41
	S.D.	9.17	10.55	8.80

	Source of variance	df	Sum of squares	Mean square	F	Level of significance
Telugu Test	Between groups	2	257.94	128.97	1.42	NS
	Within groups	397	36033.37	90.76		
	Total	399	36291.31			

	Group	Poor physical facilities	Average physical facilities	Good physical facilities
	Number of learners	115	135	150
	Means	32.10	34.14	36.75
	S.D.	9.40	10.67	9.43

	Source of variance	df	Sum of squares	Mean square	F	Level of significance
Arithmetic Test	Between groups	2	1434.19	717.09	7.38	0.01
	Within groups	397	38567.44	97.14		
	Total	399	40001.62			

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Table 94 Contd.

	Group	Poor physical facilities	Average physical facilities	Good physical facilities
	Number of learners	115	135	150
	Means	33.07	36.93	37.23
	S.D.	10.57	11.88	10.21

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1329.00	664.50	5.59	0.01
	Within groups	397	47188.19	118.86		
	Total	399	48517.19			

	Group	Poor physical facilities	Average physical facilities	Good physical facilities
	Number of learners	115	135	150
	Means	97.30	105.31	107.22
	S.D.	26.78	30.62	25.34

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	6913.00	3456.50	4.52	0.05
	Within groups	397	303079.00	763.42		
	Total	399	309992.00			

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11.16 to 14.38 were classified as centres with average teaching-learning materials. The centres fell in each of these categories were 23, 26 and 31 respectively. Number of learners found in NFE centres with more number of teaching-learning materials were 115, with average number of teaching learning materials were 155 and with less number of teaching-learning materials were 130.

The mean achievement scores in all the tests, SDs, sum of squares, mean square for the three categories of students with more, average and less number of teaching-learning materials were computed as shown in ANOVA Table 95.

The could be observed from Table 95 that the calculated 'F' ratios were significant for all the tests at 0.01 level of significance. Hence the null hypothesis that the teaching-learning materials in NFE centres had no significant influence on the academic achievement of NFE learners was rejected. It was concluded that the teaching-learning materials in NFE centres had significant influence on each one of the performance areas of NFE learners.

6.5.4 Prediction of Factors Affecting the Learning Outcomes

Among the fourteen variables relating to NFE learners, instructors and centres, only such variables with continuous scores were considered in step-wise multiple regression analysis for the prediction of academic achievement of the NFE learners. In other words, variables with discrete scores were dropped. Hence age (A), size of land holding of parents (SLH), income of parents (IP), development of locality (DL), academic achievement motivation (AAM), attitude of the instructor towards NFE (AI), physical facilities (PF) and teaching-learning materials (TLM) available at NFE centres were taken into consideration for multiple regression analysis in predicting the academic achievement (AA).

Hypothesis 26

The contribution of each one of the factors relating to the NFE learners (age, size of land holding of parents, income of

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TABLE 95

The Influence of Availability of Teaching-Learning Materials in NFE Centres on Academic Achievement of NFE Learners

	Group	Less number of teaching-learning materials	Average number of teaching-learning materials	More number of teaching learning materials
	Number of learners	130	155	115
	Means	30.87	33.68	35.72
	S.D.	8.59	10.24	8.96

Telugu Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1463.56	731.78	8.34	0.01
	Within groups	397	34827.75	87.73		
	Total	399	36291.31			

	Group	Less number of teaching-learning materials	Average number of teaching-learning materials	More number of teaching-learning materials
	Number of learners	130	155	115
	Means	32.30	34.09	37.64
	S.D.	10.30	10.21	8.98

Arithmetic Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1790.31	895.16	9.30	0.01
	Within groups	397	38211.31	96.25		
	Total	399	40001.62			

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Gandhi Memorial College Of Education Bantalab Jammu

Table 95 Contd.

	Group	Less number of teaching-learning materials	Average number of teaching-learning materials	More number of teaching learning materials
	Number of learners	130	155	115
	Means	33.71	36.05	38.29
	S.D.	11.59	10.84	10.18

Problem Areas Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	1283.06	641.53	5.39	0.01
	Within groups	397	47234.12	118.98		
	Total	399	48517.19			

	Group	Less number of teaching-learning materials	Average number of teaching-learning materials	More number of teaching-learning materials
	Number of learners	130	155	115
	Means	96.80	103.60	111.72
	S.D.	27.93	28.70	24.59

Total Test	Source of variance	df	Sum of squares	Mean square	F	Level of significance
	Between groups	2	13591.00	6795.50	9.10	0.01
	Within groups	397	296401.00	746.60		
	Total	399	309992.00			

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TABLE 96
Inter-correlations Between Dependent Variable and Independent Variables of the Learners of NFE

Variable	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9
Academic Achievement (X_1)	1.000	.277	.216	.285	.017	.585	.200	.136	.199
Age (X_2)		1.000	.017	.109	.031	.075	.089	.113	.155
Size of land holding (X_3)			1.000	.531	—.074	.125	—.030	.071	0.52
Income (X_4)				1.000	.012	.198	.057	.179	.187
Development of locality (X_5)					1.000	—.014	.286	.259	.196
Academic Achievement Motivation (X_6)						1.000	.044	.044	.046
Attitude towards NFE (X_7)							1.000	·178	.238
Physical facilities (X_8)								1.000	.818
Teaching learning materials (R_9)									1.000
X	103.73	12.45	1.44	3702.50	8.35	11.82	95.35	9.75	12.77
SD	27.87	1.48	1.99	2739.76	2.75	2.88	13.24	2.71	3.24

Gandhi Memorial College Of Education Bantalab Jammu

parents, development of locality and academic achievement motivation), instructors (attitude towards NFE), and NFE centres (physical facilities and teaching-learning materials) in predicting the academic achievement is not significant.

The variables considered for step-wise regression analysis, their inter correlations, the means and standard deviations of all the variables are presented in Table 96.

The observation of Table 96 reveals that the academic achievement scores had the highest correlation with academic achievement motivation, whereas the development of locality had the lowest correlation with the academic achievement. The highest inter-correlation observed was between X_8 and X_9 and the lowest inter-correlation observed was between X_5 and X_4.

Multiple regression (step-wise) analysis was carried out to derive an equation with which the prediction of academic achievement would be possible with eight independent variables—age, size of land holding of parents, income of parents, development of locality, academic achievement motivation, attitude of instructors towards NFE, physical facilities and teaching-learning materials. In other words the step-wise regression analysis was carried out to explain the maximum possible variance in the dependent variable (AA) with the help of eight independent variables. The summary of each step of the multiple regression analysis is given in Table 97.

From Table 97 it could be observed that the first variable entered into the multiple regression analysis was academic achievement motivation. The multiple 'R', 0.585 was significant at 0.01 level (F=206.593 for 1 and 398 df). The value indicated that the strength of relationship was about 58.5 percent. The co-efficient of multiple determination, 'R^2' was 0.342 which revealed that 34.2 percent of the variance in the academic achievement was explained by the variable academic achievement motivation alone in step number 1. The standard error of multiple estimate (column 5) was 22.644 which disclosed that nearly 68 percent of the obtained academic achievement scores would lie within the range of $\pm$ 22.644 units of predicted academic achievement scores.

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TABLE 97

Multiple (step-wise) Regression Analysis—Dependent Variable : Academic Achievement, Independent Variables : Academic Achievement Motivation, Age, Attitude Towards NFE, Size of Land Holding, Teaching-learning Materials, Income, Physical Facilities, and Development of Locality

Step No.	Independent variable entered in each step	Multiple R	R^2	Standard error of multiple estimate	F-value (df) and level of significance	b-Co-efficient or partial regression co-efficient	F-value for 'b' and level of significance	Constant	β-Co-efficient	Simple correlation with dependent variable and its level of significance	Percentage of variance explained by each one of the independent variable
1	2	3	4	5	6	7	8	9	10	11	12
1.	Academic achievement motivation	0.585	0.342	22.644	206.593** (1,398)	5.639	206.593**	37.091	0.585	0.585**	34.2
2.	Age	0.630	0.397	21.707	130.443** (2,397)	5.468 4.411	210.252** 36 083**	−15.793	0.567 0 235	0.277**	33.2 6.5
3.	Attitude towards NFE	0.648	0.420	21.301	95.736** (3,396)	5.412 4.159 0.327	213.585** 33.059** 16.280**	−43.127	0.561 0.221 0.155	0.200**	32.8 6.1 3.1

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1	2	3	4	5	6	7	8	9	10	11	12
						5.231	203.516**	—44.703	0.542	0.216**	31.7
4.	Size of land holding	0.665	0.442	20.934	78.264** (4,395)	4.128	33.755**		0.220		6.1
						0.338	18.057**		0.161		3.2
						2.079	15.403**		0.149		3.2
						5.212	205.005**	—47.703	0.540	0.199**	31.6
5.	Teaching-learning materials	0.672	0.452	20.768	64.945** (5,394)	3.874	29.631**		0.206		5.7
						0.289	12.699**		0.137		2.8
						2.002	14.453**		0.143		3.1
						0.666	6.951**		0.102		2.0
						5.120	194.629**	—45.912	0.531	0.285**	31.1
6.	Income	0.675	0.456	20.716	54.892** (6,393)	3.775	28.095**		0.201		5.6
						0.284	12.344**		0.135		2.7
						1.444	5.486**		0.103		2.2
						0.595	5.443**		0.092		1.8
						0.001	2.988@		0.098		2.2

Table 97 Contd.

2	3	4	5	6	7	8	9	10	11	12
Physical facilities	0.6773	0.4587	20.690	47.455** (7,392)	5.122	195.269**	−44.127	0.531	0.136**	31.1
					3.751	27.785**		0.200		5.5
					0.281	12.083**		0.133		2.7
					1.469	5.681**		0.105		2.3
					1.084	6.373**		0.167		3.3
					0.001	3.119*		0.098		2.2
					−0.926	1.998@		−0.092		−1.2
Development of locality	0.6777	0.4593	20.705	41.512** (8,391)	5.116	194.351**	−43.627	0.530	0.017@	31.0
					3.747	27.684**		0.200		5.5
					0.295	12.397**		0.140		2.8
					1.437	5.399**		0.103		2.2
					1.064	6.095**		0.164		3.3
					0.001	3.146*		0.098		2.5
					−0.844	1.593@		−0.083		−1.1
					−0.260	0.410@		−0.016		−0.3

** Significant at 0.01 level * Significant at 0.05 level @ Not significant

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The partial regression co-efficient or 'b' co-efficient presented in column 7 was 5.639. This value indicates that academic achievement increased by 5.639 units for every unit of increase in the variable academic achievement motivation. The 'F' value for 'b' (column 8) was significant beyond 0.01 level. The constant value to be considered in the equation at the step was 37.091 (column 9).

The general form of the prediction equation may be given as :

$$X_1' = A + b_1X_2 + b_2X_3 + b_3X_4 + \ldots\ldots + b_nX_n + 1$$

where X_1' denotes the predicted score of dependent variable, 'A' is the constant

b_1, b_2, b_3, ... b_n are partial regression co-efficients and X_2, X_3, X_4, ... $X_n + 1$ are the obtained values on different independent variables.

Thus the actual equation at the end of the first step would be :

$$X_1' = 37.091 + 5.639\ X_5 \text{ or}$$
$$AA = 37.091 + 5.639\ AAM \qquad (1.1)$$

Age entered as the second most significant variable into the step-wise regression analysis. The multiple 'R' 0.630 was significant beyond 0.01 level for 2 and 397 df. Both factors AAM and age put together could explain about 39.7 percent of the variance in academic achievement. Out of this, 33.2 percent (the product of β-Beta weight and simple correlation between factor AAM with academic achievement) of the variance was explained by the factor AAM and the remaining 6.5 percent of the variance was accounted for by the factor age (column 12). It was evident that by including the factor age, the contribution of AAM was brought down from 34.2 percent to 33.2 percent due to inter-correlations between the two predictor variables.

The standard error of multiple estimate (SE of R) in column 5 revealed that nearly 68 percent of obtained academic

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achievement scores would lie within the range of ± 21.707 units of predicted scores of academic achievement. The partial regression co-efficient shown in column 7 explained that the academic achievement would increase by 5.468 and 4.411 units for every unit of increase in AAM and age respectively. Both partial regression co-efficients were significant at 0.01 level (column 8). The regression equation to predict academic achievement with AAM and age as predictor variables and with constant A = −15.793 would be :

$$AA = -15.793 + 5.468\ AAM + 4.411\ A \qquad (1.2)$$

Attitude of the instructors towards NFE entered into the step-wise regression analysis as the third variable. The multiple correlation or combined association of AAM, age and attitude of the instructors towards NFE with academic achievement was 0.648, which was significant at 0.01 level (F=95.736 for 3 and 396 df). The value of 'R^2' (0.420) disclosed that 42 percent of variance in academic achievement could be explained by these three variables. Out of this 32.8 percent, 6.1 percent and 3.1 percent were explained by AAM, age and attitude of the instructors towards NFE respectively. It was observed that by including attitude of the teachers towards NFE as one more predictor variable, the variance accounted for by AAM had decreased from 33.2 percent to 32.8 percent and the variance accounted for by age had also decreased from 6.5 percent to 6.1 percent because of the inter-correlations between the three variables.

The standard error of multiple estimate indicated that 68 percent of obtained academic achievement scores would lie within the range of ± 21.301 units of predicted academic achievement scores. When these three predictor variables were considered, the partial regression co-efficients indicated that the increase in academic achievement was 5.412, 4.159 and 0.327 units for every unit increase in variables AAM' age and attitudes of instructors towards NFE respectively. All the three partial regression co-efficients were significant at 0.01 level (F=213.585, 33.059 and 16.280 for 1 and 398 df). The regression equation at this step with the constant of −43.127

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and the above partial regression co-efficients for the three predictor variables would be :

$$AA = -43.127 + 5.412\ AAM + 4.159\ A + 0.327\ AI \qquad (1.3)$$

The next variable entered into the step-wise regression analysis was size of land holding. The multiple 'R' was 0.665 which was significant beyond 0.01 level ($F = 78.264$ for 4 and 395 df). It revealed that the combined strength of relationship between AAM, age, attitude of instructors towards NFE and size of land holding with academic achievement was 66.5 per-cent. All the four variables put together could explain 44.2 percent variance ($R^2 = 0.442$) in the dependent variable. Out of this 44.2 percent of predictable variance, the contributions of each one of the predictor variables were 31.7 percent, 6.1 per-cent, 3.2 percent and 3.2 percent by AAM, age, attitude of instructors towards NFE and size of land holding respectively.

The standard error of multiple estimate indicated that 2/3 of the obtained academic achievement scores would lie within the range of $\pm$ 20.934 units of predicted scores of academic achievement. The 'b' co-efficients disclosed that when the four independent variables viz., AAM, age, attitude of instructors towards NFE and size of land holding were included in the regression analysis, the academic achievement would increase by 5.231, 4.128, 0.338 and 2.079 units for every unit increase in the four variables respectively. The regression equation which would predict the academic achievement of students was :

$$AA = -44.703 + 5.231\ AAM + 4.128A + 0.338\ AI + 2.079\ SLH \qquad (1.4)$$

The fifth variable entered into the analysis was teaching-learning materials. The five predictor variables put together could explain 45.2 percent ($R^2 = 0.452$) of the variance in academic achievement and the strength of relationship between academic achievement and the combination of five variables—AAM, age, attitude of instructors towards NFE, size of land holding and teaching-learning materials was 67.2 percent. The remaining terms seen in the table may be explained similarly. The equation at this step would be :

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$$AA = -47.703 + 5.212\ AAM + 3.874\ A + 0.289\ AI + 2.002\ SLH + 0.666\ TLM \quad (1.5)$$

The other variables income, physical facilities and development of locality entered into step-wise regression analysis were not contributing significantly in predicting the dependent variable. The change in R^2 and the partial regression co-efficients were not significant. Hence the null hypothesis was accepted in the case of these three variables. The best equation to predict AA was 1.5 with which it would be possible to explain 45.2 percent of the variance in the dependent variable. As the partial regression co-efficients of all the five variables were significant at 0.01 level, the null hypothesis with regard to these variables was not accepted.

SECTION VI

6.6 COMPARISON OF THE ACADEMIC ACHIEVEMENT BETWEEN FORMAL AND NON-FORMAL LEARNERS

Procedure adopted for comparison of academic achievement between formal and non-formal learners

The mean achievement and standard deviation for both the formal and non-formal learners were calculated and tabulated for testing the null hypothesis formulated. The significance of mean as a deviation from the hypothesized value for the mean was tested by taking 't' value from table with df=N−1 (400−1+200−1=598) and checking whether the obtained 't' value reached 1.96 and 2.58 required respectively at 0.05 and 0.01 levels of significance. If the obtained 't' value did not reach the value required for the chosen level of significance the deviation was attributed to chance and the null hypothesis was accepted. If the obtained 't' reached the value required for the chosen level of significance at 0.01, the hypothesis was rejected.

Testing of hypothesis

A question often posed by some academicians, administrators as well as lay men is whether there is any significant

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difference in the academic achievement between the NFE learners and formal primary school pupils. By academic achievement we mean the performance of learners in the three areas of knowledge—Telugu, Arithmetic and Problem Areas.

In order to find out whether there exists any significant difference between the IV stage NFE learners and V standard formal primary school pupils with regard to their achievement in Telugu test, Arithmetic test, Problem Areas test and in the Total test, null hypotheses were set up for testing.

Hypothesis 27

There is no significant difference between the mean performance of NFE learners and formal primary school pupils in Telugu test.

TABLE 98
Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Telugu Test)

Variable	N	Mean	SD	CR	Level of significance
NFE learners	400	33.38	9.75	13.89	0.01
Formal primary school pupils	200	45.75	10.68		

The obtained 't' value was 13.89. The table value for 598 df is found to be 1.96 at 0.05 level and 2.58 at 0.01 level. The obtained value was found to be higher than the table value at 0.01 level. Hence the difference was significant beyond 0.01 level. The null hypothesis was therefore rejected.

Among the two means, the mean of formal primary school learners (45.75) was more than that of the mean of NFE

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learners (33.38). Hence, evidently it may be said that formal primary school learners did better in Telugu test as compared to NFE learners. In other words the achievement of the formal primary school pupils was higher than that of the NFE learners in Telugu test.

The percentages of mean scores of the NFE learners and formal primary school pupils in Telugu test represented in Figure 10 shows the values as 47.68 and 65.36 respectively. The achievement of the formal primary school pupils was above 50 percent and that of NFE learners was below 50 percent. This indicates that the achievement of the formal primary school pupils was higher than that of the NFE learners.

An illustration given in Figure 11 shows the ogives of scores earned by NFE learners and formal primary school pupils in Telugu test. The ogive of the formal primary school pupils lies to the right of ogive of the NFE learners showing that the score of the formal primary school pupils is consistently higher than that of the NFE learners. Difference in achievement as between the two groups are shown by the distances separating the two curves at various levels.

Hypothesis 28

There is no significant difference between the mean performance of NFE learners and formal primary school pupils in Arithmetic test.

TABLE 99
Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Arithmetic Test)

Variable	N	Mean	SD	CR	Level of significance
NFE learners	400	34.84	10.03	7.54	0.01
Formal primary school pupils	200	41.63	10.56		

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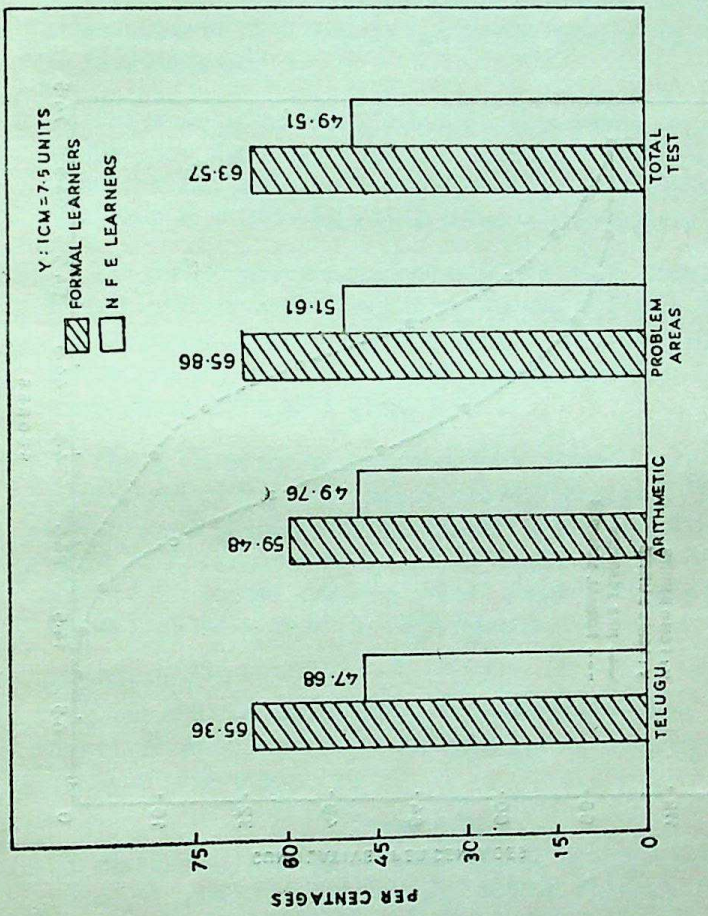

FIG. 10: PER CENTAGE OF MEAN SCORES OF THE FORMAL AND NON FORMAL LEARNERS IN THE ACHIEVEMENT TESTS

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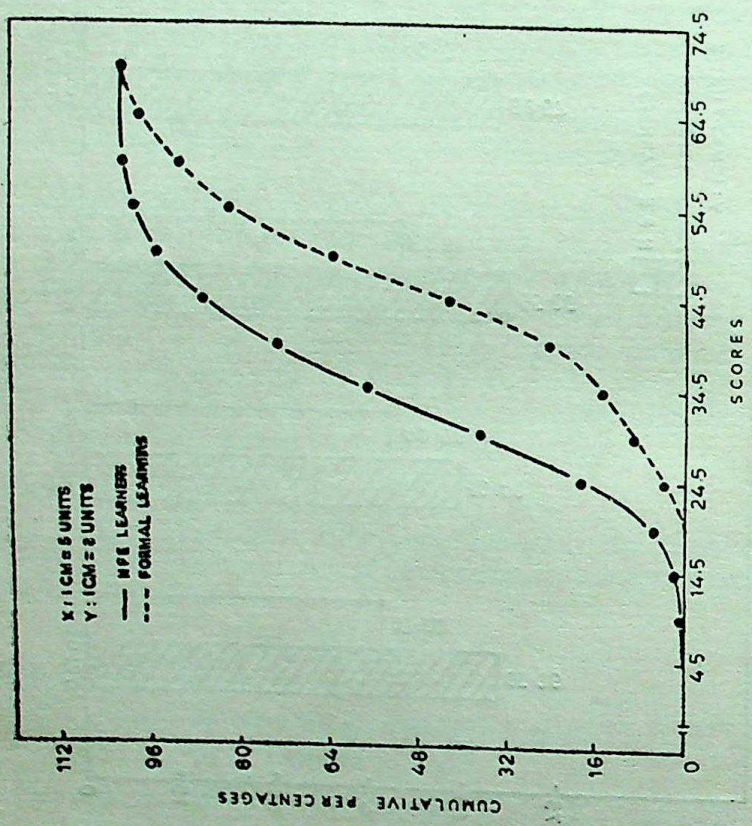

FIG.11: OGIVES OF THE SCORES OF THE FORMAL AND NON-FORMAL LEARNERS ON THE TELUGU TEST

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The obtained 't' value was 7.54. The table value for 598 df is found to be 1.96 at 0.05 level and 2.58 at 0.01 level. The obtained value was found to be higher than the table value at 0.01 level. Hence the difference is significant beyond 0.01 level. The null hypothesis was therefore rejected. It may be concluded that there was significant difference between the achievement of NFE learners and formal primary school pupils in Arithmetic test.

The mean of the formal primary school pupils (41.63) was higher than the mean of the NFE learners (34.84). It may be stated that the performance of the formal primary school pupils was better than that of the NFE learners in Arithmetic test.

The percentages of mean scores of the NFE learners and formal primary school pupils represented in Figure 10 shows that there was difference between them, 49.76 and 59.48. The formal primary school pupils had higher achievement in Arithmetic test than the NFE learners.

The ogives of the scores of the NFE learners and formal primary school pupils are represented in Figure 12. The ogive of the formal primary school pupils lies to the right of the ogive of the NFE learners over the entire range, showing that the score of the formal primary school pupils was consistently higher than the score of the NFE learners.

Hypothesis 29

There is no significant difference between the mean performance of NFE learners and formal primary school pupils in Problem Areas test.

TABLE 100

Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Problem Areas Test)

Variable	N	Mean	SD	CR	Level of significance
NFE learners	400	36.13	11.10	10.61	0.01
Formal primary school pupils	200	46.10	10.76		

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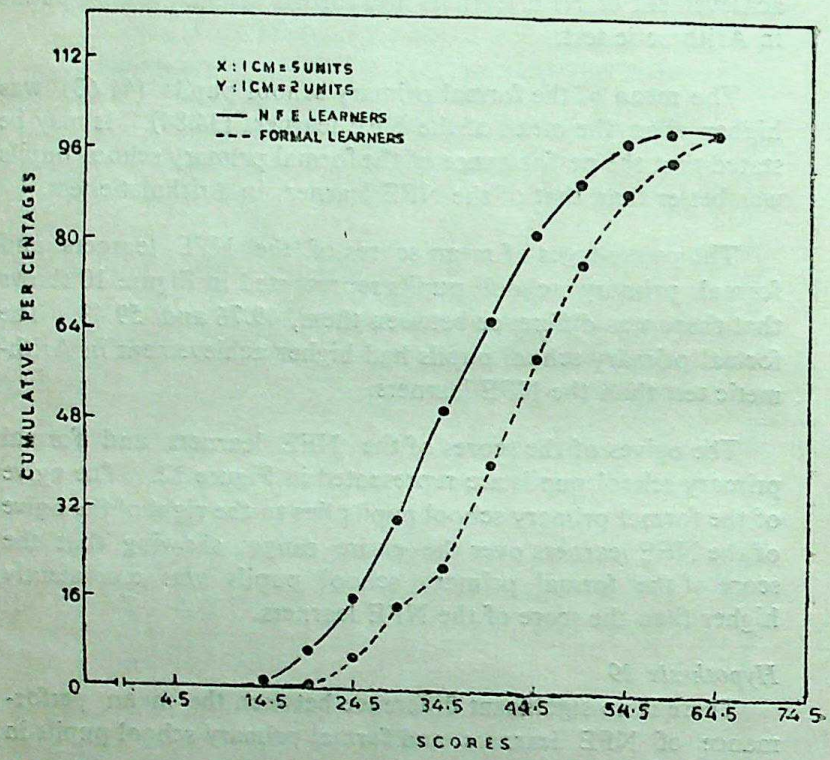

FIG. 12: OGIVES OF THE SCORES OF THE FORMAL AND NON FORMAL LEARNERS ON THE ARITHMETIC TEST

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From Table 100 it is observed that the obtained 't' value is 10.61. The table value for df 598 is found to be 1.96 at 0.05 level and 2.58 at 0.01 level. The obtained value was found to be higher than the table value at 0.01 level. Hence the difference was significant beyond 0.01 level. The null hypothesis was therefore rejected.

The NFE learners and formal primary school pupils obtained means of 36.13 and 46.10 respectively. It is possible to conclude that the performance of formal primary school pupils was better when compared to the performance of the NFE learners in Problem Areas test.

A higher achievement among the formal primary school pupils compared to the NFE learners in Problem Areas may be seen from Figure 10. The percentage of the mean scores of the NFE learners and formal primary school pupils were 51.61 and 65.86 respectively.

The ogives, representing the scores on Problem Areas test are plotted upon the same coordinate axes in Figure 13 provide a useful overall comparison of the two groups – the NFE learners and formal primary school children.

The cumulative percentage curve of the formal primary school pupils lies to the right of the cumulative percentage curve of the NFE learners over the entire range, showing that the formal primary school pupils' scores were consistently higher than the scores of the NFE learners. Differences in achievement as between the two groups are shown by the distances separating the two curves at various levels.

Hypothesis 30

There is no significant difference between the mean performance of the NFE learners and formal primary school pupils in Total Academic Achievement.

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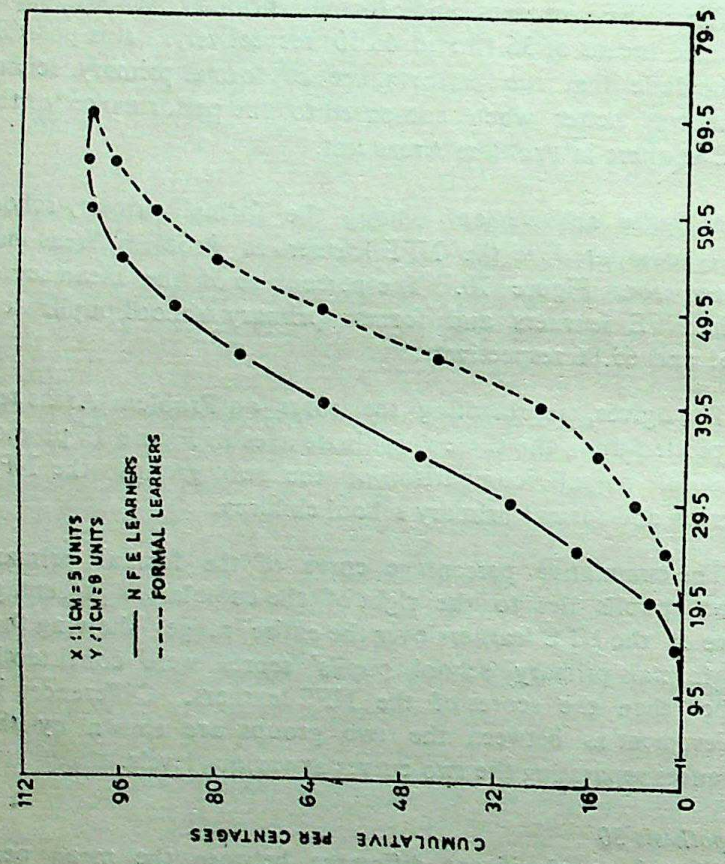

FIG·13:OGIVES OF THE SCORES OF THE FORMAL AND NON FORMAL LEARNERS IN PROBLEM AREAS TEST

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TABLE 101
Difference in the Mean Performance of NFE Learners and Formal Primary School Pupils (Total Test)

Variable	N	Mean	SD	CR	Level of significance
NFE learners	400	103.98	27.41	13.86	0.01
Formal Primary school pupils	200	133.50	23.10		

The obtained 't' value was 13.86. The table value for df 598 is found to be 1.96 at 0.05 level and 2.58 at 0.01 level. The obtained value was found to be higher than the table value at 0.01 level. Hence the difference was significant beyond 0.01 level. The null hypothesis was therefore rejected.

Among the two means, the mean of formal primary school pupils (133.50) was higher than that of the mean of NFE learners (103.98). This provided clear evidence to conclude that the Total Academic Achievement of the formal primary school pupils was higher than that of the NFE learners.

The percentages of mean scores of the NFE learners and formal primary school pupils represented in Figure 10 shows that there was marked difference between them, 49.51 and 63.57. The total academic achievement of the formal primary school pupils was higher than that of the NFE learners.

An illustration given in Figure 14 shows ogives of scores earned by NFE learners and formal primary school pupils in Total Academic Achievement. The ogive of the formal primary school pupils lies of the right of the ogive of the NFE learners showing that the scores of the formal primary school pupils were consistently higher than that of the NFE learners. Differences in achievement as between the two groups were shown by the distances separating the two curves at various levels.

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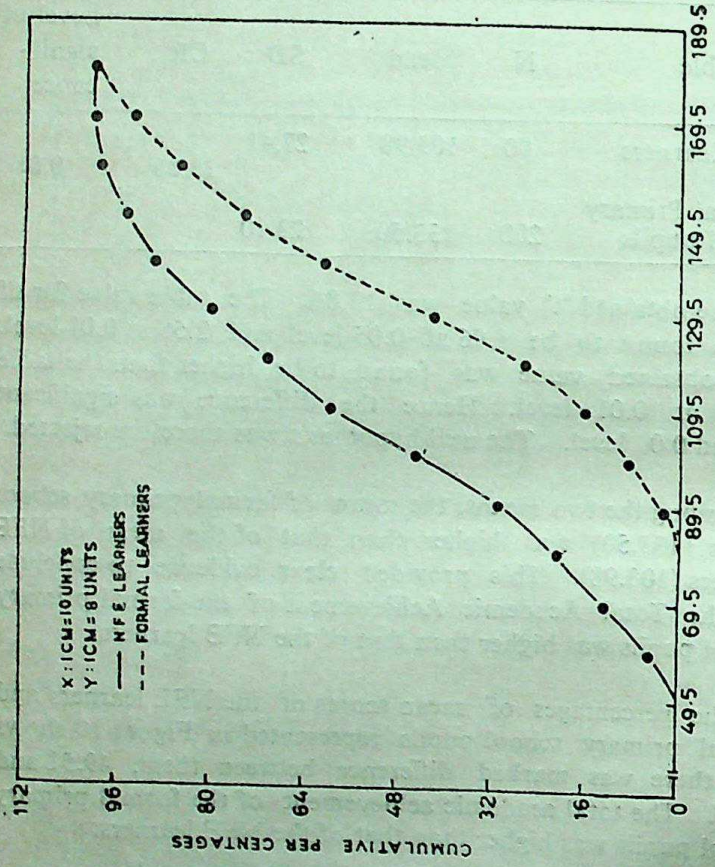

FIG. 14: OGIVES OF THE SCORES OF THE FORMAL AND NON FORMAL LEARNERS IN TOTAL TEST

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Discussion

In the present study it is found that the learning outcomes in terms of the performance of the formal primary school children in all the areas of knowledge namely Telugu test, Arithmetic test, Problem Areas test and Total Academic performance is better than that of NFE learners. The probable reasons that can be described for the superiority of the formal primary school children are as follows.

The NFE programme basically differs from formal primary education programme. The former is voluntary whereas the later is compulsory. Again the later is better organised having a long standing set pattern of rules and regulations whereas NFE is of recent origin. The instructional situation in a NFE centre may be as bad as a single teacher primary school or sometimes worse than that. The input of the NFE programme namely drop-outs and non-starters, again is qualitatively different from that of formal schooling. These children may have the responsibility of earning for their family, which is normally not to be found with respect to the pupils of the formal primary schools. The formal primary school children who are free from their family responsibilities are likely to attend the classes regularly but the NFE learners may not attend the classes regularly for want of free time. These are the weaknesses observed in NFE learners.

Another input of strategic significance is instructor. The instructor in the formal primary school is in general superior to his counterpart in NFE centre in the general qualification, professional qualification and in teaching experience. Added to this, there is an efficient organisational structure to support the formal primary education system. Therefore, the learning out comes in the case of formal primary school pupils will definitely be qualitatively superior to those of the learners of NFE which suffers from lack of proper motivation. In the absence of proper motivation, many inefficiencies such as irregularity in conducting classes, irregularity in attendence and consequent drop-out may cripple the programme.

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CHAPTER VII

Summary, Conclusions, Recommendations and Suggestions

A brief summary of the study, major findings of the study, educational implications and recommendations, and suggestions for further study are given in this chapter.

7.1 SUMMARY

The present study had its objective of evaluating certain aspects of NFE programme for children aged 9-14 years in Rayalaseema Area. As the programme is implemented through the NFE centres, the study in reality meant the evaluation of certain aspects of the functioning of the NFE centres.

The following were the main objectives of the study :

(1) To ascertain the composition of the NFE learners in terms of (A) sex (B) age (C) caste (D) occupation of parents (E) size on the land holding of parents and (F) development of locality,

(2) To find out the difference in the inputs such as physical facilities, teaching-learning materials and kind of instructors available at the NFE centres,

(3) To find out the reasons for attending the NFE centres and dropping out from the NFE centres,

(4) To ascertain the learning outcomes of the NFE centres in terms of the performance of the learners in (A) Telugu (B) Arithmetic and (C) Problem Areas tests,

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(5) (A) To find out the influence of the variables relating to the learners, instructors and the NFE centres on the academic achievement of the NFE learners.

(B) To identify the factors relating to the learners, instructors and the NFE centres which predict the performance of the learners, and

(6) To compare the performance level of the IV stage NFE learners with those of V standard formal primary school pupils.

The indicators of the academic achievement of the learners were their accomplishment in Telugu, Arithmetic and Problem Areas tests. The academic achievement was a dependent variable in the study. The independent variables considered in this study pertaining to the learners were sex, age, caste, occupation of parants, size of land holding of parents, development of locality, income of parents, academic achievement motivation and category of drop-out/non-starter (experience of prior schooling) ; the independent variables relating to the instructors were professional qualifications, teaching experience and attitude towards NFE ; and the independent variables pertaining to the centres were physical facilities and teaching-learning materials.

The following null hypotheses were formulated for testing :

(1) The availability of physical facilities and teaching-learning materials of the NFE centres, professional qualifications and teaching experience of instructors do not significantly vary among the four districts of Rayalaseema.

(2) There is no significant difference in the attitude towards the NFE programme between (A) male and female instructors (B) two age groups of instructors (C) instructors with and without professional qualifications and (D) instructors with less and more teaching experience.

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(3) (i) The ranking of reasons given by the NFE learners for attending the NFE centres does not significantly vary between/among (A) groups of four districts (B) boys and girls (C) two age groups (D) different caste groups (E) different occupational groups (F) groups with different sizes of land holding and (G) groups from different levels of development of locality.

(ii) The ranking of reasons given by the drop-outs for dropping out from NFE centres does not significantly vary between/among (A) groups of four districts (B) boys and girls (C) two age groups (D) different caste groups (E) different occupational groups (F) groups with different sizes of land holding and (G) groups from different levels of development of locality.

(4) There is no significant influence of variables pertaining to NFE learners [(A) sex (B) age (C) caste (D) parents' occupation (E) parents' size of land holding (F) development of locality (G) parents' income (H) academic achievement motivation (I) category of drop-out/non-starter (experience of prior schooling)], instructors [(J) professional qualifications (K) teaching experience (L) attitude towards NFE programme], and centres [(M) physical facilities and (N) teaching-learning materials] on each one of the achievement areas—Telugu, Arithmetic, Problem Areas and Total performance.

(5) The contribution of each one of the factors relating to the NFE learners (age, size of landing holding of parents, income of parents, development of locality and academic achievement motivation), instructors (attitude towards NFF), and NFE centres (physical facilities and teaching-learning materials) in predicting the academic achievement is not significant.

(6) There is no significant difference between the mean academic performance of NFE learners and formal primary school pupils.

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The tools—(1) Telugu test (2) Arithmetic test (3) Test in Problem Areas (5) Academic Achievement Motivation Inventory and (5) Learners' Reasons for Attending the NFE Centres—Check-list meant for the NFE learners ; (6) Interview Schedule and (7) Reasons for Dropping out from NFE Centre—Check-list meant for drop-outs from NFE Centres ; (8) Schedule for Class-room Situation (9) Questionnaire for Instructors (10) Attitude of the Teachers Towards NFE and (11) Development of Locality Scale meant for the instructors are developed by the investigator following the standard procedures.

For the analysis of the composition of NFE learners, all NFE learners from I to IV stage from 80 selected NFE centres were considered. For other aspects, the main source of data were the responses of a sample of 400 learners, 160 drop-outs from NFE centres and 80 instructors of NFE centres, and 200 formal primary school pupils.

The analysis of data dealt with the following aspects :

(1) Explanation of the status of NFE centres in terms of composition of learners, instructors and availability of physical facilities and teaching-learning materials.

(2) Description of the difference in the inputs at NFE centres in the four districts of Rayalaseema by employing X^2 and 't' tests.

(3) Analysis of the reasons for attending the NFE centres and dropping out from NFE centres by making use of rank correlation and Kendall's co-efficient of concordance.

(4) Explanation of the descriptive characteristics of the learning outcomes of NFE learners and formal primary school pupils.

(5) Description of the influence of independent variables relating to the learners, instructors and NFE centres on the academic achievement of the NFE learners by

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making use of 't' test and ANOVA. Computation of step-wise multiple regression analysis for the purpose of identifying the factors that predict the academic achievement of the learners.

(6) Comparison of the academic achievement of formal and non-formal learners by employing 't' test.

7.2 MAJOR FINDINGS

(A) Composition of NFE Learners

(1) The NFE centres consisted of boys and girls in the ratio of 3 : 2. The NFE centres could not attract the girls as expected of them.

(2) 9 and 10 years old children constituted poor percent of enrolment in the NFE centres. Higher the age of the learners higher was their percentage of enrolment.

(3) The representation of SC/ST and BC learners in NFE centres was considered adequate.

(4) The largest occupational groups represented among the NFE learners were that of agriculturists and labourers.

(5) The programme could attract more number of learners from the landless poor and from less developed localities.

(B) Composition and kind of NFE Instructors

(6) A little less than one-fourth of the instructors were women.

(7) The instructors largely belonged to the younger age group (below 30 years).

(8) Majority of the instructors were from back-ward and forward castes. A meagre number of instructors were from SCs and STs.

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(9) The primary occupation of majority of NFE instructors was farming and teaching.

(10) A large number of NFE instructors were SSC holders. There were a few graduates. No one was a post-graduate.

(11) Two-thirds of the instructors were without any professional qualifications. Others were possessing higher grade, secondary grade and B.Ed. qualifications. None had post-graduate teaching degree.

(12) Two-thirds of the instructors had no earlier teaching experience of any kind except in the same NFE programme.

(13) There was no variation in the professional qualifications among the groups of instructors belonging to the four districts of Rayalaseema.

(14) There was no considerable variation in the teaching experience among the groups of instructors belonging to the four districts of Rayalaseema.

(15) The attitude of male and female NFE instructors towards the NFE programme was not significantly different.

(16) The attitude of the young and old NFE instructors towards NFE programme did not significantly differ.

(17) The instructors with professional qualifications were more favourable than instructors without professional qualifications in their attitude towards the NFE programme.

(18) There was no significant difference between NFE instructors with less and more teaching experience in their attitude towards the NFE programme.

(C) Physical Facilities Available at NFE Centres

(19) The primary school stood out as most prominent place for NFE centre.

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(20) A large number of NFE centres had electric lights and kerosene lamps for lighting.

(21) In more than three-fourths of the centres the learners were sitting on the floor.

(22) 75 percent of the centres had the facility of drinking water.

(23) 77.5 percent of buildings of NFE centres did not leak.

(24) 62.5 percent of centres had the ringing bell.

(25) Regarding furniture, only 65 percent, 47 percent and 10 percent of the centres had chair, table and record box respectively.

(26) Only 65 percent of centres had the open space for children to go to urinals.

(27) Only 65 percent and 22.5 percent of the buildings of NFE centres had the windows and ventilators respectively.

(28) Almost all the centres in the sample were near to the houses of the learners.

(29) The number of physical facilities available in the NFE centres in the four districts of Rayalaseema were almost the same.

(D) Teaching-Learning Materials Available in NFE Centres

(30) The work books, maps, charts, globe, flash-cards and playing materials were not available in all centres because they were not supplied to any NFE centre.

(31) The roll-up black boards and text-books—Telugu, Arithmetic and Problem Areas were adequately available in all the centres.

(32) The slates, slate pencils and chalk-pieces were adequately available in 97.5 percent, 92.5 percent and 95 percent of NFE centres.

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Gandhi Memorial College Of Education Bantalab Jammu

(33) Only 80 percent and 78.75 percent of NFE centres were having note books and pencils adequately.

(34) The availability of teaching-learning materials in the NFE centres of the four districts of Rayalaseema were almost the same.

(E) Reasons for Attending/Dropping out

(35) The maximum number (300) of respondents checked the reason 'to be able to read and write lessons' as the first and foremost reason for their attending the NFE centres. 'To read bus name boards', 'to read story books', 'to read the news papers', 'to maintain cleanliness', 'to teach other young children', 'to speak politely', 'to read names of the cine actors' were ranked second, third, fourth, fifth, sixth, seventh and eighth respectively, as the reasons for their attending the NFE centres.

(36) There was significant agreement between/among (A) boys and girls (B) two age groups of learners (C) the three caste groups of learners (D) learners from different occupational groups (E) learners from families with different sizes of land holding (F) learners from different levels of development of locality and (G) learners from different districts in checking the reasons for attending the NFE centres.

(37) The maximum number (101) of drop-outs from NFE centres checked the reasons 'engaged in household work' as the first and foremost reason for their dropping from the NFE centres. 'Tired of day to day work', 'family problems', 'ill-health', 'migration to other village', 'no companion', 'to look after children', 'felt shy in going to centre', 'scared of coming at night' and 'due to redicule of people' were ranked second, third, fourth, fifth, sixth, seventh, eighth, nineth, and tenth respectively, as the reasons for dropping out from the NFE centres.

(38) There was significant agreement between/among (A) drop-out boys and girls (B) drop-outs from the three

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Gandhi Memorial College Of Education Bantalab Jammu

caste groups (C) drop-outs from different occupational groups (D) drop-outs from families with different sizes of land holding and (E) drop-outs from different districts in checking the reasons for their dropping out from the NFE centres.

(39) There was significant disagreement between the (A) drop-outs of two age groups and (B) drop-outs from different levels of development of locality in checking the reasons for their dropping out from the NFE centres.

(F) Learning Outcomes

(40) The performance of NFE learners in general in all the three tests was neither high nor low. Each test was for a maximum score of 70. The highest mean score (36.13) was in Problem Areas test and the lowest mean score (33.38) was in Telugu. The difference between the highest and lowest mean scores was negligible. The mean score in Arithmetic test was 34.84.

(41) The performance of formal learners in general in all the three tests was more than average. The highest mean score (46.13) was in Problem Areas test and the lowest mean score (41.63) was in Arithmetic test. The mean score in Telugu test was 45.75.

(G) Influence of Independent Variables on Academic Achievement

(42) Age, parents, occupation, parents' size of land holding, parents's income, academic achievement motivation, category of drop-out/non-starter (experience of prior schooling) ; professional qualifications, teaching experience, attitued of instructors towards NFE ; teaching-learning materials available at NFE centres had significant influence on all the four areas of academic performance of NFE learners.

(43) The caste of the learners had no significant influence on their academic achievement.

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Gandhi Memorial College Of Education Bantalab Jammu

(44) Sex of learners had no significant influence on their achievement in Telugu test but it had significant influence on their achievement in Arithmetic, Problem Areas and Total test.

(45) The level of development of locality had significant influence on the achievement of NFE learners in Arithmetic test and Total test. With regard to the achievement of NFE learners in Telugu and Problem Areas tests, it had no influence.

(46) The availability of physical facilities had significant influence on the achievement of the NFE learners in Arithmetic and Problem Areas tests. With regard to the achievement of the NFE learners in Telugu test and Total test, it had no influence.

(H) Prediction of Factors Affecting the Learning Outcomes

(47) Academic achievement motivation was found to be the most significant factor contributing to the academic achievement of NFE learners. Other significant factors were age of the learners, attitude of the teachers towards NFE, size of land holding of parents and teaching-learning materials available at the NFE centres.

(I) Comparison of the Academic Achievement between Formal and Non-formal Learners

(48) There was significant difference between the learners of formal primary schools and NFE centres in respect of test-wise academic achievement and total academic achievement. The formal primary school pupils were superior to NFE learners in all the performance areas.

7.3 EDUCATIONAL IMPLICATIONS AND RECOMMENDATIONS

From the findings of the study and on the basis of the observation made by the investigator during the study, a few recommendations which may help the NFE programme to a great extent are offered.

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Only 39.98 percent of girls were enrolled in the NFE centres. In view of the fact that there are more number of drop-outs among the girls, and the presence of more number of illiterate girls as non-starters, more girls of the age group 9-14 should be enrolled and more NFE centres exclusively for girls should be opened.

Enrolement of the 9 and 10 years old children seemed to be poor. It is recommended that more intensive door to door contact in co-operation with the community be utilised for enrolling the drop-outs and non-starters of this age group.

There were 61.07 percent of the learners belonging to the SC, ST and BC castes. Similarly SCs and STs formed 20.03 percent of the learners. It is recommended that this healthy trend should be continued.

Agriculturists (45.72%) and labourers (43.57%) formed the largest occupational groups, while another 10.71 percent were belonging to caste profession and others. These findings mean that special attention has to be paid to attract the learners who are engaged in caste professions by way of imparting the skills of very important caste professions in NFE centres.

Nearly 46 percent of the learners did not own land while 32.5 percent had 5 acres and less land. 45 percent of the learners were from less developed localities. This is an indication that the programme has penetrated into less developed areas and could attract the land-less poor to a considerable extent. This of course, is an encouraging finding. However, it may be noted that the programme as expected should maintain this trend.

Care must be taken to select good instructors. It is necessary that the instructor should be both willing or committed and able to teach the children. Considering the fact that the instructor should be an organiser and motivator of the children besides having the commitment and knowledge required, an instructor should be a person acceptable to the local community. A person who belongs to the local community and

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who has some formal or informal social position within the community may be given perference. Such a person is likely to be acceptable to the children and able to get the community involved in the programme.

It was found in the study that the proportion of women instructors was small. While recruiting the instructors, the qualifications and experience being same, women instructors may be preferred to men because women instructors are likely to attract more number of girls to NFE centres.

Majority of the instructors in the programme were found to be young (below 30 years). While the instructors are recruited, middle aged people, if available, should also be considered so that their experience and maturity in dealing the problems could be fully utilised for the success of the programme.

There were only a meagre number of SC and ST instructors. If SC and ST candidates with minimum qualifications are available, they may be recruited as instructors so as to attract more number of learners from such disadvantaged castes. Majority of the instructors were SSC holders and without professional qualifications. Though the programme does not require graduates and post-graduates, persons with higher educational qualifications, and professional qualifications may be preferred. In the absence of anybody else, if a person with very low educational qualification is selected as instructor, training and constant supervision should make up for the deficiency.

The attitude of the teacher towards NFE programme goes a long way for the success of the programme. It was found in the study that the instructors with professional qualifications were more favourable than the instructors without professional qualifications in their attitude towards the NFE programme. Therefore, while recruiting the instructors persons with professional qualifications may be preferred to the persons without professional qualifications.

Only 61 percent of the sample of NFE centres were located in the primary school premises. The primary school is far better than any other place for locating the NFE centre. There-

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fore, the potentiality of using the primary school may be fully exploited.

Nearly half of the NFE centres had only kerosene lamps and these do not give adequate light. Since most of the classes are held at night, it is recommended that the centres be provided with petromax lights. They must be always kept in a workable condition.

In three-fourths of the centres the learners sat on the floor. Mats, gunny bags or planks should be supplied to the centres either by the Government or by the community.

One-fourth of the centres were lacking even the minimum facility like drinking water. The instructors of the respective centres have to come out voluntarily to arrange the drinking water in the centres.

The leakage of the buildings, lack of windows and ventilators, lack of furniture and lack of ringing bell in the NFE centres could be over come if the centres are located in the established available primary schools.

The teaching-learning materials are very much required for effective teaching and learning. Not supplying, inadequate supply and late supply of the teaching-learning materials to the NFE centres will negatively effect the learning. The possibility of providing work books, maps, charts, globe, flash cards and playing materials should be explored by the State Government.

The teaching-learning materials like note-books and pencils should also be supplied adequately to all the NFE centres.

It may be observed that the first and foremost reason for their attendance to the NFE centres was to be able to read and write lessons. The learners were quite aware that they would get equipped with necessary literacy skills if they attended the NFE centres. These literacy skills would in turn enable them to read bus name boards and story books, to read and wrire lessons, to maintain cleanliness, to teach other young children, to speak politely and to read names of cine actors. As

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Gandhi Memorial College Of Education Bantalab Jammu

the learners are already motivated for reading and writing lessons, for reading bus name boards, stories and news papers, and maintaining cleanliness, the NFE centres should not only provide literacy skills but also provide minimum a local news paper, a few story books, in order to sustain their interests.

Engagement in the household work, getting exhausted due to day to day work, family problems, ill-health, migration to other village, for looking after children, feeling shy in going to centres, fear of coming at night, riducle of people were some of the important reasons for dropping out from the NFE centres. The NFE centres are mainly meant for non-starters and drop-outs from formal primary schools. Any reason which leads to the dropping out would be a colossal waste. In order to save the learners from the problem of dropping out, the instructors should hold the classes at that time when most of the learners are free from house hold work after giving some reasonable liesure after their day to day work. In addition, the local elites may be approached to persuade the learners to attend the classes. Before starting the NFE centres it must be ensured that the period of the NFE centres does not collide with the seasonal agricultural operations such as sowing and harvesting. If that is not possible a vacation may be given for the duration of the agricultural operation ; and the NFE centres may be allowed to make up for the days given as vacation.

Irregular attendance, permanent absenteeism and drop-out rate can be controlled by adjusting the timings of the NFE centres upto a point only. The poor children will always find it difficult to divert from their economic and house hold work for education. Therefore, they should be convinced of the need for education and the NFE centre should be attractive enough to them to attend the classes inspite of the difficulties which they actually face.

On the whole the performance of the NFE learners in Telugu, Arithmetic and Problem Areas tests was nearly average. They registered the highest mean score (36.13) in Problem Areas test and the lowest mean score (33.38) in Telugu test. This indicates that the NFE centres contributed

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Gandhi Memorial College Of Education Bantalab Jammu

to the improvement of the learners' skills in Telugu, Arithmetic and Problem Areas.

Learners with parents having higher income, caste profession, more size of land holding ; learners with higher academic achievement motivation, experience of prior schooling (drop-outs) ; learners having instructors with professional qualifications, more teaching experience, high attitude scores towards NFE ; and learners having adequate teaching-learning materials in NFE centres performed better in all the tests. These findings mean that special attention has to be paid to the learners whose parents income was low, size of land holding was low, and are engaged in agriculture and labour. Secondly, the instructors should take necessary care to see that learners with low academic achievement motivation and non-starters are not left far behind.

The learners having instructors without professional qualifications and less teaching experience had poor performance. In order to cover this deficiency such instructors must be exposed to intensive training and supervision. It was found in the study that the achievement of the learners with teachers having low attitude towards NFE was low. In order to avoid this deficiency necessary measures should be taken to see that the teachers with more favourable attitude towards NFE should alone be recruited.

As the finding in this study indicated that the learners who had adequate teaching-learning materials could perform better than those learners without adequate number of teaching-learning materials, the administrators should supply all the required teaching-learning materials adequately in time.

Academic achievement motivation was found to be the most significant factor contributing to the academic achievement of NFE learners. It was also observed that higher the academic achievement motivation, higher was the achievement and vice-versa. In view of this finding it is better that a simple standard tool on academic achievement motivation is administered to the learners when they are enrolled in the NFE centres. The

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Gandhi Memorial College Of Education Bantalab Jammu

instructors should take necessary steps to enhance the motivation level of such students who posses low motivation.

A comparison of the achievement between the formal and non-formal learners in different performance areas indicated that there was significant difference. The formal primary school pupils were superior to NFE learners in all the performance areas. Inspite of the expectation that the NFE should maintain the same standard of the formal education, it should be realised that the NFE is not able to maintain so. The academicians and the administrators concerned with NFE should make all sincere efforts in not only identifying the reasons for not maintaining the standards as expected but also to improve the situation before it is too late.

7.4 SUGGESTIONS FOR FURTHER RESEARCH

(1) Similar study as the present one may be conducted with a larger sample and with more variables at the state level.

(2) A study on operational aspects of implementing NFE programme may be carried out to provide practical, concrete and first hand information.

(3) The relationship between the availability of inputs and performance of learners in NFE centres may be investigated.

(4) A study on the identification of specific factors contributing/hindering the effective implementation of NFE may be carried out.

(5) An investigation of teachers' personality/teachers' effectiveness as related to NFE learners' attendance, persistance and academic performance may be conducted.

(6) A study to investigate the rate of drop-outs in every stage of NFE and the reasons for drop-outs may be conducted.

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Gandhi Memorial College Of Education Bantalab Jammu

(7) A longitudinal study on drop-out rate in every subsequent year and also on drop-out ratio among the various categories of non-formal students and factors affecting retention may be systematically conducted.

(8) A study may be conducted with a large sample to find out whether the drop-outs of formal school children show higher academic performance than non-starters in NFE centres.

(9) A study may be conducted to find out the ways and means by which all school drop-outs and non-starters can be motivated to participate successfully in NFE programme.

(10) A study for developing suitable mass media programmes for motivating parents and community for NFE may be taken up.

(11) Simple but valid achievement type tests to assess the level of achievement of non-formal students may be developed and standardised on large sample so that they may serve the researchers.

(12) Effect of different material incentives on the academic achievement of non-formal students may be investigated.

(13) Effect of mass media exposure of the NFE programmes on the academic performance of learners may be studied.

(14) Cost effectiveness study about the design, implementation and target population may be carried out.

(15) A comparative cost-benefit study of formal and non-formal programmes may be conducted.

(16) Case studies regarding active involvement of community members in day to day functioning, planning and management of NFE centres may be conducted.

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Gandhi Memorial College Of Education Bantalab Jammu

CHAPTER VIII

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Appendix-A

FINAL STUDY FORMS

STUDENT'S PERSONAL DATA

Serial No. :
Name of the NFE Centre :
Name of the Block :
Name of the District :

1. Name :
2. Sex : Boy/Girl
3. Age :
4. Caste :
5. Father's occupation : 1. Primary occupation :
   2. Secondary occupation :
6. Father's size of land holding : 1. Wet land.....acres
   2. Dry land.....acres
7. Annual income of your family : 1. Due to main occupation :
   2. Due to secondary occupation :
   3. Other income :
8. Were you a student in the primary school previously ? : Yes/No
9. If yes, which class did you pass ? :
10. Did you know to read and write prior to joining the NFE centre : No/to some extent/yes

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Learner's Reasons for Attending the NFE Centre—Checklist

From the following list of reasons given, check the reasons which are actually suitable to you.

1. For taking up jobs
2. For reading story books
3. For reading the names of cine actors
4. For reading the names of buses
5. For reading news papers
6. For the sake of educated friends
7. For seeking higher education
8. For teaching young children
9. To speak politely
10. To maintain cleanliness
11. To be able to read and write lessons
12. To get good name and fame
13. Not to be idle
14. Any other reason

Academic Achievement Motivation Inventory

Instruction : Two statements together will be read out to you. You have to agree with only one of them. Indicate the statement that you agree with. Put a tick (√) mark in the bracket given against the statement with which you agree.

1. I want to study well to avoid blame from my parents. ( )
   I want to study well to excel others. ( )
2. I like to study well and get the appreciation of all. ( )
   I do not like to study for the sake of appreciation of others. ( )
3. Even though the conditions facilitate for my study are less, I like to read better than others. ( )
   Without encountering any difficult, it is enough if one studies to the extent to which the conditions facilitate. ( )

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4. If for any reason my study is obstructed, I get frustrated. ( )
   I do not care, even if for any reason my study is obstructed. ( )
5. Study should be given more importance than rest for the students. ( )
   Rest should be given more importance than study for the students. ( )
6. I like assisting elders in the house work more than my study. ( )
   I like studying more than assisting elders in the house work. ( )
7. If I get less than the average marks in the examinations I will be frustrated. ( )
   I do not mind if I get less than the average marks in the examinations. ( )
8. I like to get the best marks if there is a prize for it. ( )
   I like to get the best marks even if there is no prize for it. ( )
9. As a student I like to be called a well dressed student. ( )
   As a student I like to be called an intelli gent student. ( )
10. I feel very unhappy when some one knocks away my book. ( )
    I do not feel unhappy even though some one knocks away my book. ( )
11. Generally I make friends with those who are clean. ( )
    Generally I make friends with those who are intelligent. ( )
12. If I lose the contest, I feel bitter. ( )
    I do not like contesting. ( )
13. I have a tendency to work on a task till it is completed. ( )
    I have a tendency to change the task if I get bored. ( )
14. I feel my success depends upon my luck. ( )
    I feel my success depends upon my hard work. ( )

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15. I do not like to touch the difficult problems. ( )
    I like to solve the difficult problems and to achieve success. ( )
16. What I like is to study better than others and achieve good results. ( )
    Even if I do not study better than others, I like spending life happily. ( )

Arithmetic Test

Serial Number :

I. Fill up the blanks :

1. The higher number among 18, 3 is——.
2. 6+3= ——.
3. One year consists of —— months.
4. One metre consists of —— centimetres.
5. 10 paise—3 paise= —— paise.
6. The whole number in $4\frac{2}{3}$ is ——.
7. 36÷9 ——.
8. The number which occurs in the sequence between 21 and 19 is ——.
9. 76—44= ——.
10. One kilogram has —— grams.
11. Number of days in a year is ——.
12. 4×3×5 = ——.
13. 30×15= ——.
14. If the price of 8 pens is Rs. 48/-, the price of one pen is Rs. ——.
15. 8 metres 56 centimetres = —— centimetres.
16. $\frac{3}{4}$ ×8= ——.

II. Write the answer against each question.

1. How many 5 paise coins do you get for a 25 paise coin ? A :
2. How much less 8 is than 12 ? A :
3. 9—6=? A :
4. Which is the day that precedes Thursday ? A :
5. How many 25 paise coins make a rupee ? A :
6. 35+22—14=? A :

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7. How many seconds make a minute ? A :
8. What is the total amount of 3 fifty paise coins and 2 twenty five paise coins ? A :
9. 15—0=? A :
10. How many hours of time is there between 8 A.M. to 8 P.M. ? A :
11. If 42 millilitres of oil is used for cooking from 80 millilitres of oil, how much of oil still remains ? A :
12. What is the total of 5 tens+4 ones ? A :
13. Write one lakh in figures ? A :
14. Which month precedes September ? A :
15. How much is the total of 524, 302 and 680 ? A :
16. Write the figures 22, 5, 18, 3 in discending order ? A :
17. How much is the difference between 12000 and 9720 ? A :
18. How many faces has cuboid got ? A :

III. Four answers are given under each question. Write the number of the correct answer in the bracket given against the question.

1. The instrument used for measuring milk
   (1) Gram (2) Metre
   (3) Litre (4) Kilo ( )
2. The instrument for measuring the length accurately
   (1) Litre (2) Metre
   (3) Gram (4) Cubit ( )
3. The price of a pencil is 25 paise. The price of a note book is 60 paise. What is the total of the two ?
   (1) 83p (2) 95p (3) 86p (4) 85p ( )
4. Even number among the following is
   (1) 8 (2) 7 (3) 5 (4) 1 ( )
5. If today is Friday, after how many days do we get the same day ?
   (1) 6 (2) 7 (3) 5 (4) 4 ( )
6. A farmer has 24 bags of paddy. His brother has 32 bags of paddy. The total number of paddy bags with both of them is
   (1) 45 (2) 57 (3) 56 (4) 64 ( )

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7. There are 36 pupils in a class. Among them 13 pupils did not attend the class. Number of pupils attended
(1) 23 (2) 12 (3) 25 (4) 22 ( )

8. A farmer obtained 25 litres of milk from the first cattle, 33 litres of milk from the second cattle and 41 litres of milk from the third cattle in a week. The number of litres of milk obtained from the three cattle
(1) 98 litres (2) 95 litres (3) 89 litres (4) 99 litres ( )

9. The largest number among the three digit numbers
(1) 999 (2) 777 (3) 888 (4) 111 ( )

10. The value of 10 paise than that of 5 paise is
(1) two times less (2) two times more
(3) three times less (4) three times more ( )

11. $\frac{1}{4}$ may be called
(1) three quarters (2) half
(3) quarter (4) half quarter ( )

12. 5% is written as fraction
(1) $\frac{1}{5}$ (2) $\frac{5}{50}$ (3) $\frac{100}{5}$ (4) $\frac{5}{100}$ ( )

13. If 12 centimetre lengthy thread is cut into three equal parts, the length of each part is
(1) 3 cms (2) 4 cms (3) 5 cms (4) 6 cms ( )

14. The price of a balance is Rs. 8.24p. The price of a bucket is Rs. 12.35 p. The price of these two is
(1) Rs. 19.59p (2) Rs. 20.70p
(3) Rs. 20.69p (4) Rs. 20.59p ( )

15. If 9 is there in tens place its value is
(1) 90 (2) 9 (3) 900 (4) 9000 ( )

16. How much 568 is more than 247 ?
(1) 213 (2) 231 (3) 321 (4) 312 ( )

17. Cycle wheel is an example for
(1) cone (2) cylinder
(3) circle (4) triangle ( )

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18. A tin contains 18 litre 750 ml. of oil. If 5 litre 200 ml. of oil is sold, the remaining oil in the tin is
(1) 13 litre 550 ml (2) 13 litre 554 ml
(3) 13 litre 259 ml (4) 13 litre 500 ml ( )

19. If the price of a watch is Rs. 275, the price of four watches is
(1) Rs. 1150 (2) Rs. 1100
(3) Rs. 1050 (4) Rs. 1000 ( )

20. If 14 m. 52 cms is deducted from 27 m. 85 cms, the remaining would be
(1) 13 m. 23 cms (2) 13 m. 31 cms
(3) 13 m. 30 cms (4) 13 m. 33 cms ( )

21. If a merchant purchases a cycle for Rs. 625 and sells it for Rs. 580, the loss for him is
(1) Rs. 45 (2) Rs. 55
(3) Rs. 65 (4) Rs. 25 ( )

22 The equivalent fraction for $\frac{1}{2}$ is
(1) $\frac{5}{4}$ (2) $\frac{3}{4}$ (3) $\frac{2}{4}$ (4) $\frac{1}{4}$ ( )

23. If three thousand four hundred nine is written in figures
(1) 349 (2) 3409 (3) 3049 (4) 34009 ( )

24. The sum of $\frac{2}{7}$ and $\frac{3}{7}$ is
(1) $\frac{6}{7}$ (2) $\frac{5}{49}$ (3) $\frac{5}{14}$ (4) $\frac{5}{7}$ ( )

25. The price of a book is Rs. 3.25p. The price of a pen is Rs. 2.75p. The price of a pencil is Rs. 0.60 p. What is the total cost ?
(1) Rs. 5.30p (2) Rs. 7.60p
(3) Rs. 6.60p (4) Rs. 5.60p ( )

26. A person purchased land and house for Rs. 1000. If the price of house is Rs. 456, the price of land is
(1) Rs. 544 (2) Rs. 454
(3) Rs. 444 (4) Rs. 554 ( )

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27. If a person purchases 12 mango fruits at the rate of Rs. 1.25 p, how much has he to pay ?
(1) Rs. 15.25 p (2) Rs. 15.00 p
(3) Rs. 13.75 p (4) Rs. 14.50 p ( )

28. The L.C.M. of 2, 4, 6 is
(1) 8 (2) 48 (3) 24 (4) 12 ( )

29. 15% of Rs. 300 is
(1) Rs. 45 (2) Rs. 50
(3) Rs. 55 (4) Rs. 40 ( )

30. A bag contains 874 lemon fruits and 1432 guava fruits. The total number of fruits in the bag is
(1) 2206 (2) 2304 (3) 2300 (4) 2306 ( )

31. $\frac{7}{9}-\frac{5}{9}=?$
(1) $\frac{35}{49}$ (2) $\frac{3}{18}$ (3) $\frac{2}{9}$ (4) $\frac{12}{9}$ ( )

32. If the price of 6 pens is Rs. 32.82 p, the price of one pen is
(1) Rs. 5.37 p (2) Rs. 5.47 p
(3) Rs. 5.44 p (4) Rs. 5.46 p ( )

33. The percent of $\frac{2}{5}$ is
(1) 30% (2) 50% (3) 40% (4) 60% ( )

34. If Rs. 26.25 p is spent from an amount of Rs. 36.40 p the remaining amount is
(1) Rs. 10.15 p (2) Rs. 10.05 p
(3) Rs. 11.15 p (4) Rs. 11.25 p (

35. The value of 8 in the number 864 is
(1) 80 (2) 8 (3) 864 (4) 800 (

36. 75 kgs of wheat was purchased for a hostel. After using the wheat for 15 days 27 kgs of wheat was remaining. If so how much of wheat was used ?
(1) 56 kgs (2) 48 kgs
(3) 58 kgs (4) 52 kgs

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TEST IN PROBLEM AREAS

Serial Number:

I. Fill up each blank with one word :

1. The moon shines in the——.
2. Salt is prepared from —— water.
3. Leaves in general are in —— colour.
4. Pure water has —— taste.
5. The growth of the body requires —— .
6. Sugar, jaggary are prepared from —— cane.
7. The colour of the middle portion of our national flag is —— .
8. The environments of the house should be —— .
9. The year in which we got our independence —— .
10. Jana gana mana is our —— anthem.
11. The Sun sets in —— .
12. The natural silk is obtained from —— worm.
13. Smoking is a —— habit.
14. Wool is got from —— hair.
15. The manufacturing of handloom is a —— industry.

II. Answer each question with a word.
The answer should be written against each question.

1. How many planets are there ? A:
2. What is the name of our State ? A:
3. Which is the fastest moving transport service ? A:
4. Give the name of a poisonous animal ? A:
5. Which is the main occupation of our people in our country ? A:
6. What is the time required for the earth rotating round itself ? A:
7. Who is our prime minister ? A:
8. Which is the capital of our country ? A:
9. Which is the animal that licks water ? A:
10. Mention a dry crop cultivated in your area ? A:
11. Give an example of amphibion ? A:
12. What is the time required for the earth revolving around the sun ? A:
13. Which is the disease caused by Mosquitoes ? A:

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III. Three answers are given under each question. Write the number of the correct answer in the bracket given against the question.

1. The bird which builds nests
   (1) Hen (2) Duck (3) Sparrow ( )
2. Generally in which part of the plant the food is prepared ?
   (1) Leaves (2) Stem (3) Roots ( )
3. Where did primitive men live ?
   (1) Villages (2) Forests (3) Deserts ( )
4. The plant that grows in water
   (1) Lily (2) Lotus (3) Chrysanthemum ( )
5. The following are mostly used in our country for ploughing the soil
   (1) He-buffellows (2) Cows (3) Oxen ( )
6. Which one of the following is eaten in more quantity ?
   (1) Rice (2) Dhall (3) Curry ( )
7. Which of the following flowers have good smell ?
   (1) Crossandras (2) Jasmine (3) China rose ( )
8. How do you send money to other places ?
   (1) through money other
   (2) through registered post
   (3) through cover ( )
9. The food that can be taken without cooking is
   (1) tubers (2) vegetables (3) fruits ( )
10. While we travel in the train, the trees outside appear
    (1) as though they are going back
    (2) as though they are going forward
    (3) without any change ( )
11. The following bird does not drown in the water for a long time
    (1) eagle (2) hen (3) duck ( )
12. The following animal has long and curved teeth
    (1) goat (2) dog (3) sheep ( )
13. The type of clothes mostly used in our country
    (1) woollen (2) silk (3) cotton ( )

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14. The following sucks the honey from the flowers
(1) house fly (2) butter fly (3) dragon fly ( )

15. The food materials are mostly obtained from the following
(1) plants (2) animals (3) birds ( )

16. We get water from the following chief source
(1) canals (2) rain (3) tanks ( )

17. The step that you would take when you are not well
(1) consulting the doctor
(2) consulting the quack
(3) consulting witch ( )

18. Handloom industries are encouraged by
(1) businessmen (2) landlords
(3) government ( )

19. The main source for the acquisition of knowledge
(1) education (2) meditation (3) yagna ( )

20. To kill the micro organisms in water, we have to
(1) filter the water (2) boil the water
(3) adopt sedimentation of water ( )

21. The preliminary treatment given immediately after the accident happens
(1) surgery (2) ayurvedic treatment
(3) first aid ( )

22. When it rains the following will mix with the rain water
(1) dust particles (2) insects (3) salts ( )

23. The moon revolves around
(1) sun (2) star (3) earth ( )

24. The chemical which you use for cleaning the water
(1) bleeching powder
(2) potassium permanganate
(3) washing soda ( )

25. The sign present on the first aid box
(1) — (2) × (3) + ( )

26. The following will prepare their own food
(1) animals (2) plants (3) birds ( )

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27. The meaning of amphibion is
(1) living both on land and in water
(2) living in the water
(3) living on the land ( )

28. The heat and light naturally obtained from
(1) fire (2) sun (3) electricity ( )

29. We must achieve the following through plans. Then only the development of the society takes place
(1) development of backward classes
(2) improve the strength of the rich people
(3) development of the towns ( )

30. It has no self illumiuation
(1) sun (2) star (3) planet ( )

31. It is better to wear the following dress in winter
(1) cotton (2) silk (3) wool ( )

32. Social development means
(1) development of society in all areas
(2) having no change in the society
(3) having quarrels, frictions in the society ( )

33. That which develops the mental health is
(1) rebuking others
(2) concentration in the work
(3) talking loudly ( )

34. An example of communication facility know to you
(1) post office (2) taluk office
(3) samithi office ( )

35. The trees at the end of winter are found with
(1) the small new leaves
(2) shed away leaves
(3) robust growth of leaves ( )

36. The following category of people are more in our country
(1) tribal people (2) rural people
(3) urban people ( )

37. In our country the State which has more number of forests
(1) Madhya Pradesh (2) Rajasthan (3) Assam ( )

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38. For the exit of the impure air from the room the following are necessary
(1) windows (2) ventilators (3) doors ( )
39. The fast moving transport on the earth is
(1) train (2) car (3) bus ( )
40. The primitive men used to wear
(1) clothes (2) skins (3) leaves ( )
41. The need for family planning
(1) agricultural development
(2) industrial development
(3) social development ( )
42. When you are suffering with excessive vomitings and loose motions, you have to
(1) drink less water
(2) drink more water
(3) drink optimum water ( )

Interview Schedule for Drop-outs

Serial No. :
Name of the NFE Centre :
Name of the Block :
Name of the District :

1. Name :
2. Sex : Boy/Girl
3. Age :
4. Caste :
5. Father's occupation : 1. Main occupation :
2. Secondary occupation :
6. Father's size of land holding : 1. Wet land.....acres
2. Dry land.....acres
7. Annual income of your family : 1. Due to main occupation :
2. Due to secondary occupation :
3. Other income :
8. Were you a student in the primary school previously ? : Yes/No
9. If yes, which class did you pass ? :

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10. What was the main reason for dropping out from primary school ? :
11. Why did you join in the NFE centre ? :
12. For how many days did you attend the centre ? :
13. Were you attending regularly before you dropped out from the NFE Centre ? : Yes/No
14. Did any one encourage you to continue in the NFE centre ? : Yes/No
    If yes, who encouraged you ? :

Reasons for Dropping from NFE Centre—Checklist

From the following list of reasons given, check the reasons which are responsible for your dropping from NFE Centre.

1. To look after children
2. Engaged in house hold work
3. Tired of day to day work
4. Felt shy to go to the centre
5. Lack of company
6. Scared of coming at night
7. Ill health
8. Due to getting married
9. Migration to other village
10. Family Problems
11. Centre being far away from the house
12. Absence of adequate physical facilities in the centre
13. Due to redicule of others
14. Necessity of hard work in the study
15. Instigation by other people against NFE Centre
16. Lack of pleasant atmosphere
17. Lack of effective teaching
18. Dislike towards the behaviour of Instructor
19. Not getting adjusted with the Instructor

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20. Irregularity of Instructor
21. This education being useless in day to day life
22. Any other reason

Questionnaire for Instructor

Serial No. :
Name of the NFE Centre :
Name of the Block :
Name of the District :

I. Teacher's personal data

1. Name :
2. Sex : Male/Female
3. Age :
4. Caste : SC/ST/BC/OC
5. Primary occupation : Caste occupation/Agriculture/Business/job
6. Are you doing any other job other than instructor in NFE Centre ? : Yes/No
7. Have you retired from any service ? :
   If yes, what is the job from which you have retired :
8. Size of land holding : 1. Wet land.....acres
   2. Dry land.....acres
9. Your annual income from all sources :
10. Your educational qualifications :
    Below SSC
    SSC
    Intermediate/PUC
    Graduate/Pandit
    Post-graduate
11. Your professional qualifications :
    Nothing
    Higher grade
    Secondary grade
    B.Ed.
    M.Ed.

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12. Are you trained to teach in NFE Centres ? Yes/No
13. Have you got teaching experience ? Yes/No

If so, in which of the following instruction ? For how many years ?

Pre-school	: ..... years
Primary school	: ..... years
Upper primary school	: ..... years
Secondary school	: ..... years
College	: ..... years
Agriculture/Technical Institute	: ..... years
Adult Education programme	: ..... years
Non-formal educatiom programme	: ..... years

II. Physical facilities

1. Place where the NFE classes are held ?
   Open space/Instructor's house/Learner's house/Local school/Local leader's house/Temple/Village choultry/ Panchayat office/any other
2. Lighting arrangement at the centre
   No need/kerosene lamp/petromax light/electric light
3. Sitting arrangement at the centre
   Ground/Durry-mats/Planks/Benches
4. If the centre is not an open space, what is the area of the centre ? .....sq. ft.
5. Drinking water facility
   No arrangement/pot water/tap water
6. Is the roof of the building leaking when it rains ?
7. Is there ringing bell facility ?
8. Furniture in the centre
   1. Teacher's chair : Yes/No
   2. Teacher's table : Yes/No
   3. Record box : Yes/No
9. Is there sufficient place for children to go to urinals ? Yes/No
10. Are there windows for the building? Yes/No
11. Are there ventilators for the building? Yes/No
12. Is the centre clean ? Yes/No
13. Is the centre near to the houses of the learners ? Yes/No

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III. Teaching-learning Materials

1. Among the following teaching-learning materials which of them have you received ? When ? Are they adequate ? Give these details in the following table

Name of the teaching-learning material	Not supplied	Supplied								
		After the commencement of the centre in this year							Adequate	Inadequate
		Immediately	Before 3 months	Before 6 months	Before 9 months	Before 1 year	After-wards			
1. Slates										
2. Slate-pencils										
3. Blackboard										
4. Chalk pieces										
5. Telugu text-books										
6. Arithmetic text-books										
7. Problem Areas text-books										
8. Note books										
9. Pencils										
10. Work books										
11. Maps										
12. Charts										
13. Globe										
14. Flash cards										
15. Playing materials										

2. Excluding the above, what are the teaching materials prepared by you ?

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Schedule for Class-Room Situation

N.B. : While filling the following schedule tick the correct answer with (√) mark when there are more than one answer.

1. NFE centre is meant
   1. only for boys
   2. only for girls
   3. for both boys and girls.

2. NFE centre is meant
   1. only for scheduled castes
   2. only for scheduled tribes
   3. only for backward castes
   4. for all castes

3. Date of starting the centre
   Date..... Month..... Year.....

4. For how many days the centre is working in a week ?
   .....days.

5. Timing of the NFE centre ? From.....to.....

6. Number of eligible children to be enrolled in the NFE centre.

   (drop-outs and non-starters between 9-14 years) in your village for the year 1984-85.

7. From among them, how many are attending to the centre ?

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8. Give the details of the learners and drop-outs of the NFE centres (year-wise) in the following table.

Year	Number of students in NFE Centre								TOTAL	Number of drop-outs								TOTAL
	Boys				Girls					Boys				Girls				
	SC	ST	BC	OC	SC	ST	BC	OC		SC	ST	BC	OC	SC	ST	BC	OC	
1979-80																		
1980-81																		
1981-82																		
1982-83																		
1983-84																		
1984-85																		

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9. Give the details of the learners of your NFE centre in 1984-85 in the following table.

Sl. No.	Boy	Girl	Age	Occupation of father	Caste				Parent's size of land holding		Date of enrolment in the centre	Put 'X' mark against the name if he/she is a drop-out	Date of dropping
					SC	ST	BC	OC	Wet	Dry			

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Attitude of the Teachers Towards Non-formal Education

Some statements are given below. Please read each statement carefully and then state whether you strongly agree (SA), agree (A), undecided (UD), disagree (DA), strongly disagree (SD) with the statement by putting a '√' mark in the appropriate bracket against each. When you are not in a position to decide, then only you can say 'undecided'. Please don't leave any item without giving your opinion.

S. No.	Statement	SA	A	UD	D	SD
1.	Non-formal education programme provides multiple entry to the children of 9-14 age group.					
2.	Non-formal education cannot attract the children of (poverty stricken families) poor families.					
3.	Non-formal education improves knowledge of good citizenship in the children.					
4.	Attending non-formal education centre is beneath the dignity of dropouts (from formal school).					
5.	Non-formal education provides an opportunity for the dropouts to complete primary education.					
6.	No one likes to attend non-formal education centres.					
7.	Non-formal education helps the socially disadvantaged children to get educated.					
8.	Non-formal education is also a failure like formal education because of heavy dropouts.					
9.	Non-formal education inculcates in the children the habits and attitudes necessary for healthy life.					

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S. No.	Statement	SA	A	UD	D	SD
10.	Non-formal education does not help for economic prosperity.					
11.	Non-formal education enables drop-outs and non-starters to become educated.					
12.	Children without minimum facilities in their houses cannot learn anything in non-formal education centre.					
13.	Non-formal education programme provides part-time education for drop-outs and non-starters.					
14.	The dropouts have problems. Therefore, they cannot learn anything in non-formal education centre.					
15.	Non-formal education helps for the improvement of living conditions.					
16.	Non-formal education is inferior to formal education.					
17.	Non-formal education helps for universalisation of primary education.					
18.	It is difficult to teach the dropouts and non-starters through non-formal education.					
19.	Non-formal education gives freedom from exploitation.					
20.	Illiterate girls need not attend the non-formal education.					
21.	Non-formal education stimulates total social development.					

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S. No.	Statement	SA	A	UD	D	SD
22.	Non-formal education alone can provide education for all school going age children.					
23.	Non-formal education provides an opportunity for illiterate children to learn.					
24.	Money spent on non-formal education 9-14 age group is a sheer waste.					
25.	Non-formal education is complementary to formal education.					
26.	Non-formal education cannot remove ignorance.					

Development of Locality—Scale

1. Educational institute in your village
   No school/ primary school/upper primary school/ high school/college
2. Medical facilities available in your village
   None/Hospital (Ayurvedic, Homeopathic)/primary health centre
3. Post and Telegraph facilities available in the village
   None/post-office/post and telegraph office
4. Is there electricity in your village?
   Yes/No
5. Transportation facilities available to your village
   None/Motarable road without bus service/bus or train/ bus and train
6. Cooperative bank facilities available in your village
   None/Cooperative/bank/cooperative and bank
7. Other government agencies in your village
   None/police station/any training centre/any other agency

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8. How far is the village from the nearest town?
   More than 10 kms/Between 5 to 10 kms/less than 5 kms/ town itself
9. Is there a weekly market in your village ?
   Yes/No
10. Percentage of literacy of your village
    Below 20 percent/between 20-30 percent/above 30 percent
11. Are there any industries/factories in the proximity of your village (within a 5 miles radious)?
    None/yes
12. Total population of your village (1981 census)

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Appendix-B

'PQ' VALUES OF THE ITEMS IN THE PILOT TESTS

1. Telugu Test
2. Arithmetic Test
3. Test in Problem Areas

TABLE 102
'PQ' Values for the Items in the Telugu Test
(Pilot Study)

Item No.	Sub-item No.	No. of students correctly answered	P	Q	'PQ'
1	2	3	4	5	6
I	1	292	0.7892	0.2108	0.1664
	2	293	0.7919	0.2081	0.1648
	3	318	0.8595	0.1405	0.1208
	4	216	0.5838	0.4162	0.2430
	5	216	0.5838	0.4162	0.2430
	6	203	0.5486	0.4514	0.2476
	7	273	0.7378	0.2622	0.1934
	8	184	0.4973	0.5027	0.2500
	9	230	0.6216	0.3784	0.2352
	10	207	0.5595	0.4405	0.2465
II	1	326	0.8811	0.1189	0.1048
	2	285	0.7703	0.2297	0.1770
	3	302	0.8162	0.1838	0.1500
	4	249	0.6730	0.3270	0.2201
	5	292	0.7892	0.2108	0.1664
	6	260	0.7027	0.2973	0.2089
	7	180	0.4865	0.5135	0.2498
	8	238	0.6432	0.3568	0.2295
	9	265	0.7162	0.2838	0.2033
	10	280	0.7568	0.2432	0.1841

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1	2	3	4	5	6
III	1	248	0.6703	0.3297	0.2210
	2	242	0.6541	0.3459	0.2263
	3	230	0.6216	0.3784	0.2352
	4	267	0.7216	0.2784	0.2009
	5	254	0.6865	0.3135	0.2152
	6	132	0.3568	0.6432	0.2295
	7	192	0.5189	0.4811	0.2496
	8	235	0.6351	0.3649	0.2317
	9	197	0.5324	0.4676	0.2489
	10	264	0.7135	0.2865	0.2044
IV	1	297	0.8027	0.1973	0.1584
	2	285	0.7703	0.2297	0.1770
	3	270	0.7297	0.2703	0.1972
	4	263	0.7108	0.2892	0.2056
	5	210	0.5676	0.4324	0.2454
	6	226	0.6108	0.3892	0.2377
V	A_1	224	0.6054	0.3946	0.2389
	A_2	208	0.5622	0.4378	0.2461
	A_3	196	0.5297	0.4703	0.2491
	A_4	182	0.4919	0.5081	0.2499
VI	1	245	0.6622	0.3378	0.2237
	2	220	0.5946	0.4054	0.2411
	3	202	0.5459	0.4541	0.2479
	4	145	0.3919	0.6081	0.2383
	5	122	0.3297	0.6703	0.2210
	6	102	0.2757	0.7243	0.1997
	7	100	0.2703	0.7297	0.1972
	8	134	0.3622	0.6378	0.2310
	9	97	0.2622	0.7378	0.1934
	10	248	0.6703	0.3297	0.2210

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1	2	3	4	5	6
VII	1	171	0.4622	0.5378	0.2486
	2	135	0.3649	0.6351	0.2317
	3	76	0.2054	0.7946	0.1632
	4	133	0.3595	0.6405	0.2302
	5	124	0.3351	0.6649	0.2228
	6	52	0.1405	0.8595	0.1208
	7	161	0.4351	0.5649	0.2458
	8	61	0.1649	0.8351	0.1377
	9	170	0.4595	0.5405	0.2484
	10	99	0.2676	0.7324	0.1960
VIII	1	267	0.7216	0.2784	0.2009
	2	165	0.4459	0.5541	0.2471
	3	80	0.2162	0.7838	0.1695
	4	208	0.5622	0.4378	0.2461
	5	179	0.4838	0.5162	0.2497
	6	175	0.4730	0.5270	0.2493
	7	204	0.5514	0.4486	0.2474
	8	165	0.4459	0.5541	0.2471
	9	252	0.6811	0.3189	0.2172
	10	133	0.3595	0.6405	0.2302
IX	1	144	0.3892	0.6108	0.2377
	2	105	0.2838	0.7162	0.2033
	3	122	0.3297	0.6703	0.2210
	4	102	0.2757	0.7243	0.1997
	5	175	0.4730	0.5270	0.2493
	6	157	0.4243	0.5757	0.2443
	7	114	0.3081	0.6919	0.2132
	8	103	0.2784	0.7216	0.2009
	9	104	0.2811	0.7189	0.2021
	10	85	0.2297	0.7703	0.1770

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1	2	3	4	5	6
X	1	292	0.7892	0.2108	0.1664
	2	263	0.7108	0.2892	0.2056
	3	242	0.6541	0.3459	0.2263
	4	216	0.5838	0.4162	0.2430
	5	197	0.5324	0.4676	0.2489
	6	150	0.4054	0.5946	0.2411
	7	92	0.2486	0.7514	0.1868
	8	70	0.1892	0.8108	0.1534
	9	61	0.1649	0.8351	0.1377
	10	52	0.1405	0.8595	0.1208
					$\Sigma pq = 15.3681$

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TABLE 103
'PQ' Values for the Items in the Arithmetic Test
(Pilot Study)

Item No.	Sub-item No.	No. of students correctly answered	P	Q	'PQ'
I	1	323	0.8730	0.1270	0.1109
	2	318	0.8595	0.1405	0.1208
	3	243	0.6668	0.3432	0.2254
	4	323	0.8730	0.1270	0.1109
	5	231	0.6243	0.3757	0.2345
	6	229	0.6189	0.3811	0.2359
	7	248	0.6703	0.3297	0.2210
	8	223	0.6027	0.3973	0.2395
	9	267	0.7216	0.2784	0.2009
	10	219	0.5919	0.4081	0.2416
	11	204	0.5514	0.4486	0.2474
	12	240	0.6486	0.3514	0.2279
	13	243	0.6568	0.3432	0.2254
	14	199	0.5378	0.4622	0.2486
	15	221	0.5973	0.4027	0.2405
	16	202	0.5459	0.4541	0.2479
	17	203	0.5486	0.4514	0.2476
	18	120	0.3243	0.6757	0.2191
	19	89	0.2405	0.7595	0.1827
	20	119	0.3216	0.6784	0.2182
II	1	276	0.7459	0.2541	0.1895
	2	275	0.7432	0.2568	0.1908
	3	245	0.6622	0.3378	0.2237
	4	255	0.6892	0.3108	0.2142
	5	276	0.7459	0.2541	0.1895
	6	277	0.7486	0.2514	0.1882
	7	242	0.6541	0.3459	0.2263
	8	254	0.6865	0.3135	0.2152
	9	290	0.7838	0.2162	0.1695
	10	243	0.6568	0.3432	0.2254

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1	2	3	4	5	6
	11	212	0.5730	0.4270	0.2447
	12	214	0.5784	0.4216	0.2439
	13	106	0.2865	0.7135	0.2044
	14	204	0.5514	0.4486	0.2474
	15	244	0.6595	0.3405	0.2246
	16	70	0.1892	0.8108	0.1534
	17	249	0.6730	0.3270	0.2201
	18	244	0.6595	0.3405	0 2246
	19	92	0.2486	0.7514	0.1868
	20	230	0.6216	0.3784	0.2352
III	1	277	0.7486	0.2514	0.1882
	2	229	0.6189	0.3811	0.2359
	3	232	0.6270	0.3730	0.2339
	4	208	0.5622	0.4378	0.2461
	5	298	0.8054	0.1946	0.1567
	6	300	0.8108	0.1892	0.1534
	7	274	0.7405	0.2595	0 1921
	8	200	0.5405	0.4595	0.2484
	9	274	0.7405	0.2595	0.1921
	10	255	0.6865	0.3135	0.2152
	11	203	0.5486	0.4514	0.2476
	12	284	0.7676	0.2324	0.1784
	13	213	0.5757	0.4243	0.2443
	14	149	0.4027	0.5973	0.2405
	15	250	0.6757	0.3243	0.2191
	16	146	0.3946	0.6054	0.2389
	17	240	0.6486	0.3514	0.2279
	18	208	0.5622	0.4378	0.2461
	19	204	0.5514	0.4486	0.2474
	20	208	0.5622	0.4378	0.2461
	21	186	0.5027	0.4973	0.2520
	22	199	0.5378	0.4622	0.2486
	23	135	0.3649	0.6351	0.2317

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1	2	3	4	5	6
	24	194	0.5243	0.4757	0.2494
	25	192	0.5189	0.4811	0.2496
	26	157	0.4243	0.5757	0.2443
	27	192	0.5189	0.4811	0.2496
	28	196	0.5297	0.4703	0.2491
	29	215	0.5811	0.4189	0.2434
	30	145	0.3919	0.6081	0.2383
	31	199	0.5378	0.4622	0.2486
	32	201	0.5432	0.4568	0.2481
	33	146	0.3946	0.6054	0.2389
	34	227	0.6135	0.3865	0.2371
	35	150	0.4054	0.5946	0.2411
	36	143	0.3865	0.6135	0.2371
	37	165	0.4459	0.5541	0.2471
	38	147	0.3973	0.6027	0.2395
	39	194	0.5243	0.4757	0.2494
	40	165	0.4459	0.5541	0.2471
	41	133	0.3595	0.6405	0.2302
	42	176	0.4757	0.5243	0.2494
	43	195	0.5270	0.4730	0.2493
	44	152	0.4108	0.5892	0.2420
	45	220	0.5946	0.4054	0.2411
	46	179	0.4838	0.5162	0.2497
	47	139	0.3757	0.6243	0.2345
	48	178	0.4811	0.5189	0.2496
	49	107	0.2892	0.7108	0.2056
	50	147	0.3973	0.6027	0.2395
					$\Sigma pq = 15.5756$

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TABLE 104
'PQ' Values for Items in the Problem Areas Test
(Pilot Study)

Item No.	Sub-item No.	No. of students correctly answered	P	Q	'PQ'
1	2	3	4	5	6
I	1	241	0.65135	0.34864	0.22709
	2	286	0.77297	0.22703	0.17549
	3	328	0.88649	0.11351	0.10063
	4	248	0.67027	0.32973	0.22101
	5	186	0.50270	0.49730	0.24993
	6	178	0.48108	0.51892	0.24964
	7	219	0.59189	0.40811	0.24156
	8	259	0.70000	0.30000	0.21000
	9	229	0.61892	0.38108	0.23586
	10	172	0.4649	0.5351	0.24880
	11	130	0.3514	0.6486	0.22790
	12	208	0.5622	0.4378	0.44610
	13	228	0.6162	0.3838	0.23650
	14	240	0.6486	0.3514	0.22790
	15	252	0.6811	0.3189	0.21720
	16	178	0.4811	0.5189	0.24960
	17	232	0.6270	0.3730	0.23390
	18	226	0.6108	0.3892	0.23770
	19	198	0.5351	0.4649	0.24880
	20	223	0.6027	0.3973	0 23950
II	1	295	0.7973	0.2027	0.1616
	2	258	0.6973	0.3027	0.2111
	3	266	0.7189	0.2811	0.2021
	4	159	0.4297	0.5703	0.2451
	5	160	0.4324	0.5676	0.2454
	6	210	0.5676	0.4324	0.2454
	7	147	0.3973	0.6027	0.2395
	8	226	0.6108	0.3892	0.2377
	9	226	0.7541	0.2459	0.1855

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1	2	3	4	5	6
	10	230	0.6216	0.3784	0.2352
	11	136	0.3676	0.6324	0.2325
	12	216	0.5838	0.4162	0.2430
	13	204	0.5514	0.4486	0.2474
	14	269	0.7270	0.2730	0.1985
	15	259	0.7000	0.3000	0.2100
	16	229	0.6189	0.3811	0.2359
	17	194	0.5243	0.4757	0.2494
	18	206	0.5568	0.4432	0.2468
	19	165	0.4459	0.5541	0.2471
	20	174	0.4703	0.5297	0.2491
III	1	226	0.6108	0.3892	0.2377
	2	282	0.7622	0.2378	0.1813
	3	273	0.7378	0.2622	0.1934
	4	246	0.6649	0.3351	0.2228
	5	293	0.7919	0.2081	0.1648
	6	240	0.6486	0.3514	0.2279
	7	262	0.7081	0.2919	0.2067
	8	269	0.7270	0.2730	0.1985
	9	239	0.6459	0.3541	0.2287
	10	190	0.5135	0.4865	0.2498
	11	295	0.7973	0.2027	0.1616
	12	305	0.8243	0.1757	0.1448
	13	291	0.7865	0.2135	0.1679
	14	261	0.7054	0.2946	0.2078
	15	249	0.6730	0.3270	0.2201
	16	254	0.6865	0.3135	0.2152
	17	247	0.6676	0.3324	0 2219
	18	170	0.4595	0.5405	0.2484
	19	224	0.6054	0.3946	0.2389
	20	231	0.6243	0.3757	0.2345
	21	172	0.4649	0.5351	0.2488
	22	150	0.4054	0.5946	0.2411
	23	217	0.5865	0.4135	0.2425
	24	250	0.6757	0.3243	0.2191
	25	179	0.4838	0.5162	0.2497

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1	2	3	4	5	6
	26	236	0.6378	0.3622	0.2310
	27	205	0.5541	0.4459	0.2471
	28	184	0.4973	0.5027	0.2500
	29	222	0.6000	0.4000	0.2400
	30	163	0.4405	0.5595	0.2465
	31	226	0.6108	0.3892	0.2377
	32	197	0.5324	0.4676	0.2489
	33	239	0.6459	0.3541	0.2287
	34	227	0.6135	0.3865	0.2371
	35	184	0.4973	0.5027	0.2500
	36	198	0.5351	0.4649	0.2488
	37	162	0.4378	0.5622	0.2461
	38	183	0.4946	0.5054	0.2500
	39	125	0.3378	0.6622	0.2237
	40	228	0.6162	0.3838	0.2365
	41	228	0.6162	0.3838	0.2365
	42	243	0.6568	0.3432	0.2254
	43	241	0.6514	0.3486	0.2271
	44	238	0.6432	0.3568	0.2295
	45	187	0.5054	0.4946	0.2500
	46	191	0.5162	0.4838	0.2497
	47	190	0.5135	0.4865	0.2498
	48	173	0.4676	0.5324	0.2489
	49	179	0.4838	0.5162	0.2497
	50	237	0.6405	0.3595	0.2302
	51	164	0.4432	0.5568	0.2468
	52	238	0.6432	0.3568	0.2295
	53	168	0.4541	0.5459	0.2479
	54	217	0.5865	0.4135	0.2425
	55	213	0.5757	0.4243	0.2443
	56	231	0.6784	0.3216	0.2182
	57	244	0.6595	0.3405	0.2246
	58	165	0.4459	0.5541	0.2471
	59	197	0.5324	0.4676	0.2489
	60	221	0.5973	0.4027	0.2405
	61	210	0.5676	0.4324	0.2454
	62	206	0.5568	0.443	0.2468

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Gandhi Memorial College Of Education Bantalab Jammu

1	2	3	4	5	6
	63	234	0.6324	0.3676	0.2324
	64	199	0.5378	0.4622	0.2486
	65	161	0.4351	0.5649	0.2458
	66	205	0.5541	0.4459	0.2471
	67	283	0.7649	0.2351	0.1798
	68	198	0.5351	0.4649	0.2488
	69	117	0.3162	0.6838	0.2162
	70	198	0.5351	0.4649	0.2488
	71	118	0.3189	0.6811	0.2172
	72	200	0.5405	0.4595	0.2484
	73	266	0.7189	0.2811	0.2021
	74	276	0.7459	0.2541	0.1895
	75	289	0.7811	0.2189	0.1710
	76	262	0.7081	0.2919	0.2067
	77	247	0.6676	0.3324	0.2219
	78	245	0.6622	0.3378	0.2237
	79	240	0.6486	0.3514	0.2279
	80	197	0.5324	0.4676	0.2489
	81	99	0.2676	0.7324	0.1960
	82	155	0.4189	0.5811	0.2434
	83	220	0.5946	0.4054	0.2411
	84	212	0.5730	0.4270	0.2447
	85	217	0.5865	0.4135	0.2425
	86	210	0.5676	0.4324	0.2454
	87	234	0.6324	0.3676	0.2325
	88	127	0.3432	0.6568	0.2254
	89	210	0.5676	0.4324	0.2454
	90	299	0.8081	0.1919	0.1551
					$\Sigma pq = 16.3225$

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Appendix-C

DIFFICULTY AND DISCRIMINATION INDICES OF THE ITEMS INCLUDED IN THE PILOT TESTS

1. Telugu Test
2. Arithmetic Test
3. Test in Problem Areas

TABLE 105

Difficulty and Discrimination Indices of the Items in Telugu Test

	Item No.	H %	L %	Dif. %	Dis. %		Item No.	H %	L %	Dif. %	Dis %
I	1*	88	45	50	10		6	70	9	42	45
	2	96	34	61	55		7*	62	37	50	15
	3*	62	37	50	15		8	88	22	55	50
	4	93	20	55	55		9	83	23	52	40
	5	75	24	50	35		10*	50	24	42	15
	6	90	13	52	60						
	7	99	41	65	55	IV	1	99	50	69	50
	8	80	16	50	45		2	100	47	69	55
	9	92	23	55	55		3	95	39	61	50
	10	82	28	62	35		4	91	45	61	50
							5	81	30	52	35
II	1	100	66	75	45		6	88	31	58	40
	2*	69	36	50	15						
	3	96	45	65	45	V	1	84	36	55	35
	4	90	44	61	35		2	75	31	52	30
	5*	68	44	52	15		3	70	32	50	25
	6	91	45	61	35		4	59	20	45	25
	7*	62	37	50	15						
	8	92	59	65	30	VI	1	97	25	61	60
	9	98	44	61	40		2	96	14	55	70
	10	89	52	61	30		3	92	17	55	60
							4	94	33	58	50
III	1	88	36	58	40		5*	68	44	52	15
	2*	64	35	50	15		6	67	8	42	45
	3	94	27	58	55		7	65	2	39	55
	4	97	30	61	60		8	72	5	42	55
	5	93	35	61	50		9	60	2	35	55
							10	94	30	58	50

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	Item No.	H %	L %	Dif. %	Dis. %		Item No.	H %	L %	Dif. %	Dis. %
VII	1	85	8	48	60	IX	1	86	2	42	70
	2	66	6	39	45		2	71	1	39	60
	3	55	2	35	50		3*	62	37	50	15
	4	74	5	42	55		4	69	2	39	55
	5	67	4	39	50		5	87	6	48	60
	6	34	2	31	35		6	85	5	45	60
	7	82	6	45	60		7	69	1	39	60
	8*	62	37	50	15		8*	55	39	48	15
	9*	88	45	50	10		9*	88	45	50	10
	10	87	8	48	60		10*	48	22	42	15
VIII	1	99	37	65	60	X	1	74	2	39	60
	2	85	9	48	55		2	69	1	39	60
	3*	62	37	50	15		3	70	9	42	45
	4	95	10	55	70		4*	48	22	42	15
	5	84	11	48	55		5	80	16	50	45
	6	87	7	48	60		6	88	21	52	50
	7	89	12	50	60		7	72	19	48	35
	8	79	8	45	50		8*	62	37	50	15
	9	97	21	58	60		9*	56	39	48	10
	10	78	8	45	50		10*	42	32	42	5

H = High group (27%)
L = Low group (27%)
Dif. = Difficulty index
Dis. = Discrimination index
* = Items discarded

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TABLE 106
Difficulty and Discrimination Indices of the Items in the Arithmetic Test

	Item No.	H %	L %	Dif. %	Dis. %		Item No.	H %	L %	Dif. %	Dis. %
I	1	97	62	69	40		15	86	32	55	40
	2*	79	62	61	15		16	56	3	45	70
	3	92	32	58	50		17	99	28	61	60
	4	98	63	69	40		18	99	29	61	60
	5	95	23	58	60		19	65	4	39	50
	6	89	21	58	60		20	94	26	58	55
	7	97	31	61	55	III	1	96	41	61	50
	8	93	21	55	55		2	91	29	58	50
	9	98	43	65	50		3	95	16	55	60
	10*	59	35	48	15		4*	88	45	50	10
	11	94	17	55	60		5	98	53	69	45
	12	98	29	61	60		6	92	52	61	35
	13	88	30	55	45		7	93	36	61	45
	14	89	10	50	60		8*	62	37	50	15
	15	96	16	55	70		9	93	42	61	40
	16	87	16	52	55		10	96	32	61	55
	17	90	23	55	50		11	64	35	50	15
	18	60	11	42	35		12	93	45	61	40
	19*	62	57	55	5		13	88	26	55	45
	20*	50	24	42	15		14	81	17	50	45
II	1	95	43	61	45		15	91	30	58	50
	2	97	67	69	35		16	82	11	48	50
	3	90	32	58	45		17	97	34	61	55
	4*	64	35	50	15		18	93	23	58	55
	5	98	31	61	60		19*	62	57	55	5
	6	99	42	65	55		20	95	28	58	55
	7	95	22	58	60		21	79	27	52	35
	8	93	23	58	55		22	89	25	55	50
	9	99	49	65	50		23	78	44	61	10
	10	97	22	58	60		24*	85	26	55	40
	11	79	18	50	40		25	85	21	52	45
	12*	78	64	61	10		26	81	17	50	45
	13	64	7	39	45		27	80	20	50	40
	14	87	19	52	50		28	88	20	52	80

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Item No.	H %	L %	Dif. %	Dis. %	Item No.	H %	L %	Dif. %	Dis. %
29	92	29	58	50	40	75	15	48	40
30*	62	37	50	15	41	64	35	50	15
31	83	23	52	40	42	72	27	50	30
32	83	29	55	35	43*	74	61	58	10
33*	75	70	61	5	44	74	28	50	30
34	83	28	52	40	45	90	21	55	55
35	64	14	42	35	46*	62	37	50	15
36*	88	45	50	10	47*	48	22	42	15
37	70	16	45	35	48	69	24	48	30
38	78	17	48	40	49*	42	20	39	15
39	82	30	55	35	50*	30	24	29	5

H = High group (27%)
L = Low group (27%)
Dif. = Difficulty index
Dis. = Discrimination index
* = Items discarded

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TABLE 107
Difficulty and Discrimination Indices of the Items in the Problem Areas Test

	Item No.	H %	L %	Dif. %	Dis. %		Item No.	H %	L %	Dif. %	Dis. %
I	1	78	46	58	20		9*	80	77	65	5
	2	96	62	69	35		10	90	30	58	45
	3*	62	37	50	15		11	65	22	45	30
	4	87	42	61	30		12	92	14	52	60
	5	72	19	48	35		13	81	33	55	30
	6*	70	60	58	5		14*	62	37	50	15
	7	86	38	58	35		15	87	44	58	35
	8	97	45	65	50		16	89	27	55	45
	9	90	40	58	40		17	79	21	50	40
	10*	88	45	50	10		18	88	26	55	45
	11	62	20	45	30		19	80	16	50	45
	12	88	21	52	50		20*	62	37	50	15
	13*	75	70	61	5						
	14	83	26	52	40	III	1*	74	61	58	10
	15	91	34	58	45		2*	80	77	65	5
	16*	82	71	65	10		3*	45	42	45	5
	17	78	40	55	25		4*	88	45	50	10
	18	87	37	58	35		5	86	50	61	25
	19	88	23	55	50		6*	74	61	58	10
	20	85	36	58	35		7*	78	64	61	10
							8	91	49	61	35
II	1*	68	44	52	15		9	89	39	58	40
	2	94	40	61	45		10*	45	42	45	5
	3*	64	35	50	15		11	98	56	69	45
	4*	88	45	50	10		12	97	12	55	70
	5	80	18	50	45		13	98	58	69	45
	6	89	29	58	45		14*	63	36	50	15
	7	74	15	45	40		15	97	47	65	50
	8*	82	71	65	10						

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Item No.	H %	L %	Dif. %	Dis. %	Item No.	H %	L %	Dif. %	Dis. %
16*	73	63	58	5	47*	56	39	48	10
17*	42	20	39	15	48	78	22	50	40
18*	73	58	58	10	49	78	35	55	30
19	87	38	58	35	50*	42	20	39	15
20*	73	58	58	10	51	64	22	45	30
21*	74	61	58	10	52	85	34	55	35
22	75	31	52	30	53*	54	36	48	10
23*	71	53	55	15	54	85	33	55	35
24*	73	58	58	10	55	86	44	58	30
25*	78	64	61	10	56	94	44	61	45
26*	75	70	61	5	57	94	48	61	40
27	79	44	55	25	58	70	24	48	30
28	85	24	52	45	59*	70	60	58	5
29*	73	53	61	5	60*	71	53	55	15
30*	79	71	65	5	61	59	20	45	25
31*	70	62	61	15	62*	51	42	48	5
32	81	29	52	35	63*	54	49	50	5
33*	74	61	58	10	64	62	20	45	30
34*	36	26	39	5	65*	42	32	42	5
35	91	49	61	35	66	70	25	48	30
36*	62	37	50	15	67*	73	46	55	15
37*	78	64	61	10	68*	74	61	58	10
38*	80	77	65	5	69*	39	26	42	10
39	52	16	42	25	70	87	35	58	40
40	88	29	55	45	71*	50	24	42	15
41*	75	70	61	5	72	83	35	55	35
42*	62	37	50	15	73	97	46	65	50
43*	79	71	65	5	74	96	48	65	45
44	92	46	61	40	75	45	40	45	5
45*	62	57	55	5	76	98	51	65	50
46	83	30	55	35	77	94	43	61	45

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Item No.	H %	L %	Dif. %	Dis. %	Item No.	H %	L %	Dif. %	Dis. %
78	89	48	61	30	85	85	35	55	35
79	95	46	61	45	86*	36	26	39	5
80	80	45	58	25	87*	73	62	58	10
81*	25	16	31	10	88	67	17	45	35
82*	64	35	50	15	89*	73	59	58	10
83	95	31	61	55	90*	42	20	39	15
84	89	32	58	45					

H = High group (27%)
L = Low group (27%)
* = Items discarded
Dif. = Difficulty indices
Dis. = Discrimination indices

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Index

A

Academic achievement
of NFE learner 47, 220, 235
influence on age and sex 202t, 201t
altitude of instructor 225t
influence on cast 204t
category of drop out 219t
development 212t
income of parents 216
professional qualification 221t
teaching experience 222t
Achievement motivation
inventory 78, 113, 216
total correlation co-efficient 81t
types and purposes 78
Adinarayana 6
Adult education 33
in Bihar and Tamilnadu 33-5
Aikara 26, 27-9, 35
Ambasht 17
Analysis of data 117
ANOVA 203, 211-6, 226, 231
Arithmetic test 61
frequency distribution of scores 65t
items in pilot 65t
multiple questions 61
specification for 62-4t
Aronson 78
Attitude scale
construction of 90
techniques 90

B

BETA value 37
Bhargava 22
Bhatt 33

C

Central Advisory Board of Education 4
Check-Lists 82
final form of 83
preliminary forms 83
Chickermane 15
Chi-square test 133
Class room situation
schedule for 88
Coefficient correlation 80, 162
Collection of data 108
for study 109
Composition of instructor 122
age and sex wise 122t
caste wise 123t
majority of 125
occupation wise 123t
professional qualification 124t
teaching experience of 125t
Construction of test 66
description of items 66
final form of 70
frequency distribution 70t
items in pilot 71
Construction of Telugu test 54
specification of 55t
Coombs 5
Critical ratio 93
calculation of 95t

D

Dave 2
Dettoni 6
Development of locality scale 100, 170
ranking reasons 171t
Dey 33

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Dixit 31
Drop-out 47, 114
  data from 110
  different caste groups 164
  pilot study 89
  ranking reasons 158-9t, 163t
  selection of 106-7t
  schedule for 89
  validity and reliability 89

E

Edward 91
Elementary education 1
  process of enrolment 2
  target of 1
  universalisation of 5
  variation enrolment 2

F

Face validity 98
Formal education 2, 46
  books for 49
  limitations 2
  reasons of failure 4
Formal and non-formal learner 242, 245f
  comparising of 242
  mean scores of 245f
  ogive of 246f
  in arithmatic test 248f
  problem areas test 250f
  total test 252f
Formal primary schools puipls 109, 243f, 249
Frequency distribution of scores
  arithmatic test 77t, 188t
  problem areas 77t, 179t, 192t
  telugu test 60t, 76t, 187t
  total test 182t, 192t
Frequency polygon of NFE learner 181f, 184f, 189f, 192f, 194f, 196f

G

Ganguli 26-7, 33
Garret 53
Grewal 18, 22, 50
Gupta 17, 18, 22

H

Hafeez 78
Hebsur 26, 35
Henriques 26, 35
Hypotheses 40

I

Indira 15
Instructor 134
  attitude of 137
  attitude scores of 143t
  professional qualification 131t
  teaching experience 136t
  smoothed frequency polygon 138f
Item analysis 52
Item selection 53

K

Kaul 16
Kendell's co-efficient 146, 150, 153, 166
Kilpatric 91
Kleis 5
Kuder-Richardson method 72

L

Lang 5
Laharia 31
Learners 47
Likert 90, 97
Locale's study 103

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Gandhi Memorial College Of Education Bantalab Jammu

M

Majumder 16
McClelland 78, 113
Mean performance of NFE
learners 243t
difference in 224t
Mehta 78
Methew 29
Mietus 5
Mishra 26-7, 33
Multiple regression on analysis
235, 236-8t
error of 235-9
step wise analysis 239, 241
Mullick 20
Murray 78

N

Naidu, Jayachandrama 19, 24
Naik 6
Natrajan 33
Non-Formal Education 1, 4, 46
age groups 39
aim of 6
characteristics of 7
centres of 11
curriculum for 10, 16
definition of 5, 6
Instructor of 9
organisation of 8
scheme of programme 11
teaching methods 15
NFE centre 115
aids of teaching 116
area of 127f
facilities 115, 227
lighting arrangement at 126t
seating arrangement 127t
status at 117
variable pertaining 115
NFE Instructor 140
age wise attitude 141t
professional qualification 142t
sex wise 140t
NFE Learner 37, 109, 112
agewise 118t
achievement test 185)
castewise 119t
component 118t
development of locality 127t
distribution of 120t
frequency polygone of 175t
in arithmatic test 176t, 178t
inter-correlation 234t
NFE Programme 110, 112, 253
aspects of 254
Nill hypothesis 133-4, 140-6, 162, 224, 242, 255
Nunnally 48

P

Papa 6
Pearson 71
Physical facilities 125, 132t
scores of NFE centres 131t
Pilot study 52, 80-3, 101
aim of 87, 93
attitude of teaching 96t
scoring key 80
Postenjee 31
Primary Schools
in rural areas 4
in urban areas 3
Problem areas 47

Q

Questionnaire
collection of 85
construction of 84
physical facilities 86
reliability of 88
teachers personal data 85

R

Rajput 18
Ramachandran 2
Random sample 79, 80, 93

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Ranking reasons 145-7t
by boys girls 149t, 161t
cast groups 151t
families 152t
occupation of parents 153
size of land holding 154t, 168t
two are groups 150t
Rao, Krishna 6
Rao, Rama 33
Reasons for NFE centre 144, 145t
number of respondents 144
dropout 157t
Rehman 15
Reliability of test 71, 82
split-half method 71
co-efficient 98
Review of related literature—NFE 13, 25
budget allocation 27
composition of learners 25
physical facilities 27
Rogers 78

S

Saraswathi 14, 17
Sarma, Atual 23, 34
Science 66
Scope of study 40-1
limitations of 46
need importance 45
objectives of study 41
Selection of districts & blocks 104
NFE centres 104
NFE learners 104-5t
Shah 30
Shukla 91
Singh 23
Sivalingam 78
Skewness & kurtosis 140, 174, 180
by formal learners 198t
of score distribution 186t
Split-half-method 72
arithmetic test 74t
problem area test 75t
scattergram of scores 73t
Statistical techniques 116
Step-wise regression 241
Sut cliffe 78

T

Teaching learning materials 29, 133, 134t
availability of 129t
Test development 49
Thurstone 48, 90
Tiapula 5
Tools of research 49
Tools & techniques 22
Tryout test 52

V

Validity of tests 76, 82, 84, 97
Value of kurtosis 139, 174, 177, 188
Value of mean 177
Variable relations to
instructor 114
qualification & attitude 114
Variables studied 111
land holding 112
occupation of parents 112
Venkataiah 23, 27
Verma 26, 33
Visaria 27

W

Ward 6

G.M.C.E.J
30
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Dr. (Mrs.) K. Rajyalakshmi born in Udayagiri, Nellore District of Andhra Pradesh has received her M.A., Psychology degree from Sri Venkateswara University, M.Ed., degree from Nagarjuna University and Ph.D., degree from Sri Venkateswara University. She has worked as Junior Research Fellow in the Department of Education, Sri Venkateswara University, Tirupati for a project financed by National Council of Educational Research and Training, New Delhi. She is coauthor of the project report "A Study of the Effectiveness of Non-formal Education Programme in Chittoor District".

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